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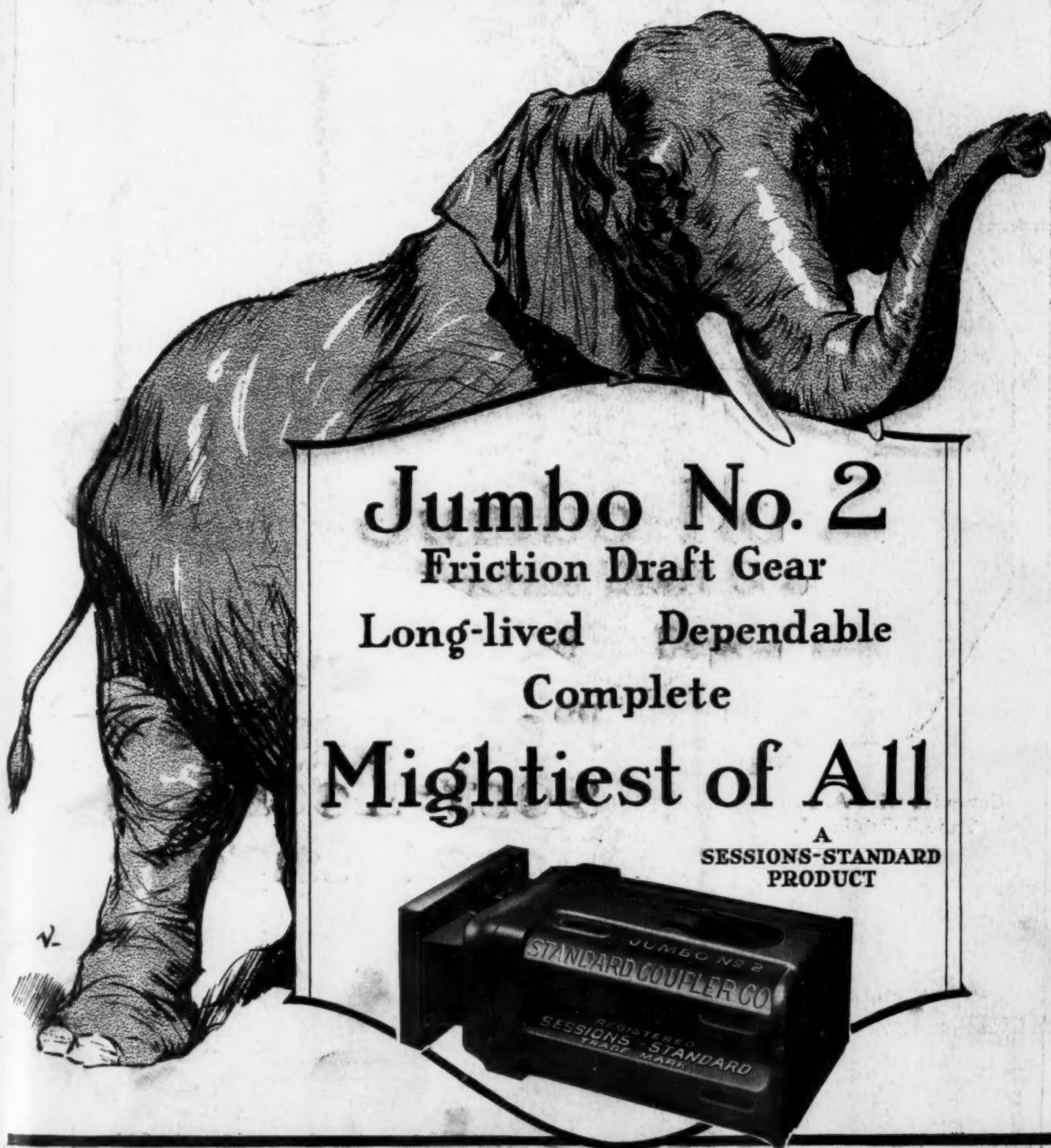
# Railway Age

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SIXTY-NINTH YEAR

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# EDITORIAL

## Railway Age

# EDITORIAL

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In conformity with precedent the gradual increase in railway revenues is being reflected in a greater activity in improvements and purchases. However, the situation is rather unique in that this tendency is manifested at a time when the prices of most basic materials have shown no tendency to advance, whereas, usually the railroads have not increased the volume of their purchases until the material market has shown a definitely upward trend. It is true that the market conditions manifest a somewhat less depressing aspect at this time than was the case several weeks ago. However, prices generally have not increased. Clearly, therefore, the roads will enjoy a considerable advantage in making purchases at this time, for prices are now appreciably lower than at any previous time during the present year. Obviously, of course, any marked increase in the volume of purchases will be followed immediately by an advance of prices. Therefore, those railroads will be served best which come into the market first.

### First Come First Served

With the release of the pressure on transportation employees for the movement of traffic following the decline in business in recent months, there has been a tendency for them to relax in their activities. This is reflected in the fact that the time consumed by road crews in taking their trains from one terminal to another has increased on more than one division or, more commonly, has not decreased as it should in view of the reduced interference from other trains. In yard operation the same tendency is evidenced, the number of cars handled per engine decreasing in many terminals. While it is difficult to maintain a high performance in the face of declining traffic, owing to the difficulty of adjusting forces to keep pace with fluctuations in business, the fact that it is not impossible is shown by the record of the Baltimore & Ohio. In June, for instance, when the total number of cars received declined 17 per cent, as compared with the same month of the previous year, a reduction in yard engine hours of 23 per cent was effected, while the number of cars handled per yard engine hour increased 8 per cent. This is indicative of the importance of following operating performances in detail constantly. It is even more important that employees be keyed up to a high point of efficiency before the coming of the heavy traffic now in prospect.

### One Way to Prepare for Heavy Business

People who run automobiles over railroad crossings and to whom railroad officers would like to give as much advice or instruction as is practicable, are of several different kinds, and it is not easy to adjust one's advice to all of them. For those who drive on without due thought of the danger and who, with a load of friends, become subjects for the coroner now and then, there is little that can be done except what is being done; broadcasting general information in every way that is practicable. We can call them fools or employ any or all resources of the English and other languages; but the individual whom we would aim at cannot be identified until after he has made his foolishness or weakness manifest; and then it is too late. Another class may be reasoned with; the intelligent and thoughtful motorist who means to comply with reasonable rules but who does not think very far beyond what he deems his own immediate interest. From these people the newspapers print a great variety of suggestions. One, recently printed in a New York paper, is to the effect that the approach of a train ought not to be announced at a crossing until danger really exists. "The automobile driver who hears a whistle a quarter-mile away knows that there is plenty of time to cross in safety, and does so. And the gongs; they ring such a long time before there is any danger that no one pays any attention to them." Men who think in this way need to learn the elementary safety lesson that in such a serious matter the only practicable safeguard that the state or the railroad can provide must be a rigid rule; flexible rules are not enforceable; and rigid rules must often prescribe a higher degree of caution than would be necessary in every case if it were practicable for each driver to decide all doubts for himself each time he approached a crossing. Critics of this class think, no doubt, that it would be perfectly reasonable to require the railroads to give notice of fast trains when they are a half mile away and of slow trains when only an eighth of a mile distant. If, in motoring, we are not willing now and then to sacrifice a half minute, or even a whole minute, for the sake of simplicity, uniformity and economy, we may as well give up any effort to make grade crossings safe. The driver who cannot afford to allow any margin of time, puts himself very nearly in the same class with the man who thinks it smart to risk his life in trying to beat the train to the crossing.

The cost of fuel constitutes approximately 13 per cent of railway operating expenses and it is therefore encouraging to note the indications that the railroads are now burning fuel more efficiently than ever before. While there is still room for improvement, many wasteful practices have been eliminated, as shown by the recent record performance of the railways of the country in reducing unit fuel consumption in freight train service to 135 lb. of coal per thousand gross ton-miles for the month of June. This record could never have been obtained without the co-operation of many thousands of railroad men throughout the country in practically all departments of steam railroads. It is convincing evidence of the effectiveness of the educational campaigns on fuel economy which the railroads have instituted. Concerning the vital importance of all departments working together, a railroad master mechanic has this interesting testimony to give: "We never got to first base with fuel economy on our road until we realized that the engineer and fireman are not the only railroad employees who can waste coal. The switchman, conductor, yardmaster, train dispatcher, general superintendent and many others are potential fuel wasters either directly through waste of the actual fuel or indirectly through errors in judgment in conjunction with the proper performance of their respective duties. Our monthly fuel meetings brought out invaluable suggestions as soon as it was under-

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### How Fuel Has Been Saved

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### Fine Points in Crossing-Safety



stood that everyone from the general superintendent down welcomed constructive suggestions regarding how he could change his present practice to save fuel." The following are typical examples of many hundreds of suggestions made at the fuel meetings. A fireman pointed out that it was useless for him to save 500 lb. of coal by judicious firing and then have a dispatcher hold the train unnecessarily on a siding while that amount of coal was burned to keep up steam and serve no useful purpose. The possibility and importance of reducing locomotive fuel stand-by losses at engine terminals was pointed out. An engineer suggested that fuel could be saved by "short switching;" i. e., placing the cars in a train so that if, for example, 6 cars in a 40-car train are to be switched to separate tracks they will be placed next to the locomotive, thus avoiding handling the full train for each of these movements. There is nothing spectacular about fuel economy. The best results will be secured when all railroad men realize its importance and work together quietly and constantly to eliminate waste and secure the efficient use of fuel at every point and in every way.

That the sentiment of railway employees in favor of government ownership of railways and of the policy of many labor

#### Can Railway Employees Be Delivered?

leaders in supporting LaFollette's candidacy on a government ownership platform, is not unanimous is shown by a letter from L. F. Jagger which we publish elsewhere. Mr. Jagger is a conductor on the Burlington and lives at Holdrege, Neb. He is not only opposed to government ownership, but he is also opposed to methods being used by the railway labor leaders, on which his letter throws light. The labor leaders constantly declaim against the "capitalist" press because, as they allege, it does not freely open its columns to views opposed to its editorial policy. Mr. Jagger shows that some of the railway labor union papers are denying members of the labor unions themselves freedom to express themselves in their columns. He sent a letter to "The Railway Conductor," the official paper of the Order of Railway Conductors, criticising the labor leaders for supporting the Plumb plan of government ownership and for their inconsistency in trying to get advances in wages and reductions of rates at the same time. "The Railway Conductor" refused to publish his letter, the reason given being that the views he expressed were contrary to the policy adopted by the Order of Railway Conductors. He says: "It will probably surprise them (the labor leaders) after the vote has been cast how many of their own men resent having their votes delivered in solid blocks without having anything to say as to who the candidate shall be." Many people have been questioning whether the railway labor leaders can constitute themselves political leaders, autocratically order the members to vote for certain candidates, and get the order obeyed. Mr. Jagger's letter shows that there are railway employees who have intelligence enough to see that labor leaders who advocate advances in wages and reductions of rates at the same time are pursuing a policy that is dangerous to railway employees; and independence enough to express and vote opinions of their own.

History is replete with incidents where men have been scorned and laughed at for insisting that their ideas were correct. Even today with the general tendency of the people to expect astonishing things to happen in the engineering field, new ideas are condemned if the first trial does not prove a success. The history of the development of the unaflo locomotive, which was described in the August 23, 1924, issue of the *Railway Age* is an excellent example of the fight an

#### Experimental Work on the Railroads

individual has to make many times in order to demonstrate the correctness of his ideas. The first locomotive built on the unaflo principle was a failure. It was experimented with for a time but finally the cylinders were replaced by those of the usual type. At a meeting of engineers a paper was read and approved by these present, in which the idea of the unaflo locomotive was pronounced as impracticable. Quoting the words of Dr. Stumpf, the inventor, "to engineers of broad vision, unsuccessful experiments are successful if they reveal the way in which success may be sought. So it was here"; and today a successful unaflo locomotive is in operation. To the railway executive who must base his decision largely on the reports of his engineering staff, a knowledge of the various motives that enter into the making of the report is important. In the majority of cases they are difficult to ascertain and quite often valuable information may be obtained from the report of an investigation made by disinterested parties. At the present time a number of important developments in the steam locomotive are being tried out. These trials and experiments are being conducted at considerable expense in time and money. It is essential, both from the standpoint of the railroads and the public welfare, that these investigations be completed in every sense of the word. The investigators may get discouraged, or perhaps the immediate need for the improvement may pass temporarily. However, such investigations should be continuous and not conducted under the stress of unusual business requirements with the hope of accomplishing something in a short time. Ideas should be worth just as much in times of plenty as they are in times of need. Investigation and experimental work is a big factor in the development of the railroads. The results of such efforts determine to a large extent their ability to render adequate service when traffic demands are at a peak. An unfavorable report on a development, the purpose of which is worth while should not be accepted until it is known that all possible means for achieving success have become exhausted.

When one studies the plans of the Van Sweringens it is not difficult to understand why so many rumors should have been given currency concerning the possible future developments of their properties. In the present instance there are so many things that impress one's fancy that it is not difficult to formulate a host of ideas about them. One is impressed first by the fact that it is the Nickel Plate that is acquiring a trunk line connection and not a trunk line that is absorbing the Nickel Plate, as everybody at one time expected. It hardly seems possible that it can be true but it nevertheless is the case that the 9,145 miles of the new system have been assembled in a short space of but two years, during which time the original Nickel Plate has been expanded several times in size. And then, Erie stockholders are finally to get a dividend—the seemingly impossible actually is about to happen. On the other hand are the possibilities of the future. Can there be anything in the rumor that the Van Sweringens want an entrance into Pittsburgh and propose to get it by acquisition of the Wheeling & Lake Erie and the Pittsburgh & West Virginia? And if they want an entrance into Pittsburgh, do they not propose an exit also? Possibly it will be the Buffalo, Rochester & Pittsburgh which everybody else wants. What really intrigues one, however, is what is to become of the Lackawanna. The loss of Nickel Plate business at Buffalo to the Erie, if such occurs, would handicap the Lackawanna; the Lackawanna is on record as desiring the Erie for itself, not only to get a line west of Buffalo but also to allow access to the Erie's New York terminals. The Lackawanna is supposed to be in the control of George F. Baker, as was the Erie. Surely Mr. Baker had something in mind when

#### The Van Sweringen Merger



he sold the inferior property of the two and realized that the sale might hurt the better one. All of which means that we may yet see the Lackawanna in the Van Sweringen system. If we do, what of the Lehigh Valley; and so on, through an apparently endless array of surmises? The point to the whole situation, however, is plain. The Van Sweringens are showing the way in railway consolidation and the amount of progress they are making should set at rest much of the talk about compulsory consolidations. Consolidation is a natural tendency and it should now be plain enough that compulsion is not necessary. The Sherman anti-trust act is seen to have been the retarding factor and the elimination of it has, as was to have been expected, put an entirely new light on the situation.

## Substitute "19" for "31" Order

WITH THE CONSTANTLY INCREASING size and frequency of trains it is becoming more and more important to eliminate all unnecessary stops. This is causing operating officers to look with growing favor on the substitution of the form "19" order, which may be delivered to a train in motion, for the form "31" order, which makes necessary the stopping of the train to secure signatures. While this transition is commonly made first on those lines with protection in the form of automatic signals, it is not limited to such lines but is also being used on many lines which are not equipped with signals.

This revision in operating practice has not proceeded, however, with the rapidity which its advantages would appear to warrant. For this reason the Association of Railroad Superintendents has studied the subject for several years and at its last convention the Committee on Train Rules submitted a report recommending the exclusive use of the "19" order and the abandonment of the "31" order. This report is summarized briefly in the statement that "the use of the '19' order has become general on a majority of the principal lines, starting on block signal territory, and has increased the efficiency to such an extent that it has also been authorized on single track outside of block signal territory."

On account of the added protection it is only logical that the use of the "19" order should be extended first to those lines equipped with automatic signals, of which there is a total of 40,065 miles of road in the United States. Manual block signaling, the next best protection, is in operation on 63,078 miles of road, while 103,143 miles of the total of 195,072 miles of road in passenger service has no signals.

Numerous roads, parts of which are equipped with either automatic or manual signals, are considering the more extensive use of the "19" order and operating officers are now seeking definite information on its use. In order to bring out as much information as possible for their assistance, the *Railway Age* announces a contest on "The Use of the '19' Train Order" to which it solicits contributions from railway officers and others familiar with its advantages and disadvantages. To promote interest a prize of \$125 will be awarded for the best paper and another prize of \$75 will be awarded for the second best paper, the awards to be made by three practical railway operating officers who will base their decisions on the practical value to operating officers of the information presented. The judges will pay particular attention to descriptions of measures which have been taken in the adoption of these practices and the results which have been secured. In addition to the prize winning articles all other articles accepted for publication will be paid for at our regular space rates. Papers should be addressed to the editor of the *Railway Age*, 608 South Dearborn street, Chicago, and must be received by November 1, to be included in the contest.

## The Problem of Late Passenger Trains

ONE OF THE VERY IMPORTANT PROBLEMS which the railways of this country must solve if they are to win and keep public favor is that of running passenger trains more nearly on time. On the average every person in the United States makes ten trips by railway annually. This gives each individual ten opportunities to get angry at the railways if the trains he uses are late. In addition, many thousands of persons go to railway stations every day to meet friends who are arriving. Every train that is late gives these people the impulse to "cuss" the railways.

One morning this week the writer went to a large passenger terminal that is used by three railways to meet a train. He first asked for some information at the station information bureau. A woman employed there gave it to him, not courteously and gladly, but with a freezing manner which it is not uncommon for employees of railway information bureaus to use. We then went to the bulletin board and found that of nine trains due to arrive during the morning six were bulletined as follows:

Train	Due	Arrive
1	7.40	11.15
2	7.59	10.05
3	8.15	10.30
4	9.15	10.30
5	9.45	9.35
6	9.45	10.05

The other three trains were bulletined to arrive on time. Within a few minutes two of the trains that were bulletined late were bulletined still later and one of the trains originally bulletined "on time" was marked late. Therefore, two-thirds of the nine trains bulletined to arrive within a few hours were late. The late trains included trains of each of the railways using the station. Unquestionably, this was an unusually bad morning's record. Nevertheless, it does forcibly call attention to a problem which every railway operating officer must admit needs more attention than it is being given. The proof that it needs much more attention consists in the undeniable fact that so many trains are late.

Trains are not late merely at large terminals. In fact, it is probable that relatively more of them are late at intermediate stations than at terminals. The greatest care should be taken when trains are late to see that they are bulletined correctly. We had occasion to take a train at a small station one night this week. We found that it was bulletined thirty minutes late. When it had become forty minutes late we asked the operator about it. He said it was then fifty minutes late. It finally came in seventy minutes late, but the "information" on the bulletin board continued throughout this time to tell the restless people who were awaiting it that it was only thirty minutes late. This is by no means an exceptional case. The employees whose duty it is to mark up the bulletin boards very commonly fail to perform this duty.

The railways are doing more educational work than ever before to create a friendly public sentiment and operating officers are working unremittingly to improve service. There is nothing more important in passenger service from the standpoint of public relations than running passenger trains on time. Conditions on the railways differ widely and the means that must be adopted on individual railways to solve the problem vary accordingly. Nevertheless, co-operative study and discussion would be helpful. All the railways would benefit by having their officers exchange information regarding methods they have used to increase the number of trains run on time and the results secured. This is a subject which the Association of Railroad Superintendents might well, it seems to us, put on the program for its next annual meeting. One of the greatest services operating officers could render would be to improve the "on time" record of the railways.

## A Record and Its Explanation      A New Record in Fuel Economy

THE ATCHISON, TOPEKA & SANTA FE is commonly recognized as the pioneer in the systematic conservation of cross ties. It has been studying this subject intensively in its various phases for more than a third of a century. It has conducted extensive experiments with a wide variety of native and foreign woods and with their treatment with different preservatives and combinations of preservatives. As a result of these investigations it has developed a practice in the selection and handling of its ties which has reduced its requirements for renewals over a considerable period of years to less than one-half of the average for the roads of the country as a whole. A record such as this and the measures contributing to it warrant the careful consideration of other railways in proportion to the extent to which their renewals exceed those of the Santa Fe.

The first requirement of the Santa Fe, and one which deserves special emphasis at the present time, is its insistence that the tie which it purchases shall be of proper quality. Not only does it demand that the tie shall be sound but it must also be of adequate size. It does not permit any reduction whatever from the standard dimensions and in fact actually pays a premium to secure ties larger than the standard dimensions. It therefore starts with a good tie.

It is equally exacting in its requirements regarding the seasoning of its ties. It insists that they must be removed promptly from the woods in which they are cut and where decay-producing conditions are prevalent, to the seasoning yards at its treating plants where conditions are favorable for seasoning free from decay. The ties are watched closely during this period to detect evidences of incipient decay and as a further precaution they are passed over cut-off saws immediately prior to treatment where small sections are removed from each end as a further means of detecting whether any decay has developed in the interior of the stick.

If the tie is found to be sound it is treated with a preservative, equal care being given to its proper injection into the timber. All ties are adzed and bored for spikes before treatment to eliminate the necessity for their mutilation in the track and to permit the penetration of the oil into the timber at the points where it is most needed.

After treatment the tie is given the same degree of care and supervision. The Santa Fe has been a pioneer in the use of tie plates of adequate size to prevent rail cutting. It has also long conducted an aggressive campaign against the unnecessary abuse of the timber, as a check on which it prohibits the destruction of ties removed from track until they have been inspected by a representative of the timber treating department.

It is to this constant supervision of the tie from the time of its production in the woods until its removal from the track at the end of its service life that the present enviable record of the Santa Fe is attributable. It is particularly opportune to call the attention of many roads to this consistent procedure at the present time when they are delaying their purchases to such an extent that they will be tempted, if not forced, to accept ties of inferior size or quality in order to secure their requirements in time for delivery next spring. Where the ties are to be treated, this procrastination in purchasing introduces the further handicap of limiting the period of seasoning possible before treatment.

The economy of treating ties with preservatives to increase their service life is becoming more generally realized and the number of ties treated is increasing from year to year. The experience of the Santa Fe offers ample proof that treatment alone is not sufficient to insure the maximum results, but that the tie must be of good quality and that it must be correctly seasoned and adequately protected after treatment, if the investment in the treatment itself is to be warranted.

ONE OF THE MOST PLEASANT DUTIES that the *Railway Age* performs from time to time is to call attention to new records of efficiency that the railways have made. In our issue for August 9, in an editorial entitled "A New Record in Train Loading," we showed that the average number of cars handled per freight train in May exceeded all previous records.

We now call attention to the fact that the statistics of the Interstate Commerce Commission show that in June, 1924, the coal consumed by locomotives in road service was used with an efficiency that surpassed all previous records. The number of pounds of coal consumed per 1,000 gross ton-miles in road freight service was 135. The nearest approach ever made to this figure since the records have been kept was in June, 1922, just before the shop employee's strike began, for which month the figure was 141. The gross tonnage upon which these statistics are based is the total weight of trains, including not only cars and their loads, but also locomotives and tenders. The number of pounds of fuel consumed in June, 1924, per passenger car mile was 15.6. The nearest approach ever made to this record was in June, 1922, for which the figure was 15.8.

The increase in the efficiency with which fuel was used, and the consequent reduction in the consumption of it in proportion to the amount of work done by locomotives, are due to efforts of many kinds that have been made by the railways, individually and co-operatively.

The railways have been gradually retiring old locomotives and substituting for them improved locomotives which develop greater hauling capacity in proportion to the fuel consumed. Furthermore, in a period of comparatively slack business, such as the roads have been going through during the last few months, they naturally store their less efficient locomotives and keep in service the more efficient power, which tends further to promote economy in the use of fuel. Also, the condition of power generally is much better than it was some months ago. The shop employees' strike caused a large part of the locomotives to get into bad condition and until they could be put into good condition again it was inevitable that the use of fuel should be comparatively inefficient.

There are other important causes of the increase in the efficiency of fuel consumption. The individual railways have been carrying on fuel economy educational work among the employees by monthly meetings, by placards which have been posted up in various places, by moving pictures, etc. Some of them have set standards of performance for the engine and train crews and have carefully checked up the actual performance as compared with the standards set. The American Railway Association and the International Railway Fuel Association have appointed a joint committee which has prepared seven booklets on fuel and related economies, drawing upon all sources for the most authoritative information. Four of these booklets have already been distributed to railroad men who have to do with the handling or use of fuel. The Fuel Association some months ago caused prizes to be offered and conducted a competition for the best papers on fuel economy. This stirred up the interest of railway men of all ranks throughout the country and over 2,000 papers on fuel economy were written and submitted.

R. H. Aishton, president of the American Railway Association delivered an address at the last meeting of the Railway Fuel Association in which he showed the saving in dollars and cents annually that would be accomplished by saving even one pound of coal for each 1,000 gross ton-miles of freight service rendered. His address aroused so much interest that he was subsequently presented with a handsomely mounted pound of coal by the officers of the Fuel Association.

In order to get the true significance of the new low record



made by the railways in the consumption of coal it is necessary to indicate the magnitude of the saving effected by it.

Marked progress was being made in reducing fuel consumption when the shop employees' strike came on July 1, 1922, causing general demoralization and undoing a large part of what previously had been achieved. The result was that during the entire year following the efficiency with which fuel was used was less, month by month, than it was in the preceding year. In the middle of the year 1923 conditions with respect to fuel consumption had become normal, and in every month since then the railways have been improving the record. Of course, however, fuel consumption always is relatively less at midsummer than in any other part of the year, and in consequence they had to work until June, 1924, to make a record better than the best previously made, namely, that of June, 1922.

The amount of fuel consumed in road freight service per 1,000 gross ton-miles last June was 11 pounds less than in June, 1923, being 146 pounds in June, 1923, and 135 in June, 1924. The number of tons of coal saved in June in consequence was about 451,000, and the average cost being about \$3.00 per ton, the saving in money was over \$1,353,000. Computed in a similar way it is found that the increased economy in fuel consumption in passenger service in June, 1924, as compared with June, 1923, saved about \$504,000. These statistics relate only to fuel consumed in road service, and show a total saving in June due to increased efficiency of about \$1,857,000.

In the first six months of 1923 the consumption in freight service was 170 pounds per 1,000 gross ton-miles and in the first six months of 1924 only 157 pounds. This reduction saved approximately 3,371,500 tons of fuel, and as the average price was \$3.17 the saving in money in the first half of the year was about \$10,688,000. Likewise, in the first six months of the year the consumption per passenger train car mile was reduced from 19.2 pounds to 17.7 pounds. This resulted in a total saving of about 1,336,000 tons of fuel, or about \$4,235,000 in expenses. Therefore, in the first six months of the year the saving resulting directly from fuel economy in both road freight and passenger service amounted to almost \$15,000,000.

Those who like to criticize the railways charge not only that they are inefficiently operated, but that to a large extent they are under the same financial control as the concerns from which they buy fuel and other supplies, and that, therefore, their operating expenses are made excessive because they pay unnecessarily high prices for what they buy. In view of such allegations it is interesting to survey the course of the cost of railway fuel within recent years. The average cost of fuel to the railways in 1920 was \$4.20 per ton and in 1921 \$4.10. It was down to \$3.46 when the great coal strike began in 1922. It then began advancing and got up to \$4.87 in August, 1922. Immediately after the normal production of coal was resumed the average price began to decline, and it has gone down continuously ever since until last June it was only about \$3.00. The average price in the first six months of 1923 was \$3.61 and in the first six months of 1924 \$3.17. On the basis of the coal consumed in road service this decline in price saved the railways almost \$25,000,000; and this added to the saving due to the increase of efficiency in the use of fuel saved them in their fuel bill in the first six months of the year almost \$40,000,000.

The actual reduction in the total cost of fuel used in road service in the first six months of the year was about \$48,000,000. Therefore, about one-sixth of the total saving was due to decline in freight service, more than one-third of it to increased efficiency in the use of fuel and the remaining one-half to reduction in the price of coal.

The total fuel bill of the railways in 1923 exceeded \$600,000,000. At the rate they are now going it will be reduced in 1924 by around \$120,000,000 and of this reduction some

\$40,000,000 to \$50,000,000 will be due to increased efficiency of operation. The actual performance of the railways is the best answer to the attacks which are constantly being made upon their management.

## New Books

*Proceedings of the Air Brake Association 1924.* Edited by the secretary, F. M. Nellis, 165 Broadway, New York. 315 pages, bound in leather.

This book contains the proceedings of the Thirty-first Annual Convention of the Air Brake Association which was held at Montreal, Quebec, Canada, May 6, 7, 8 and 9, 1924. The reports submitted covered Brake Pipe Leakage; Freight Car Foundation Brake Design; Condemning Limits of the A. R. A. Standard Triple Valve Parts; The Triple Valve Test Rack Operator; Reclamation of Air Brake Material; Reclamation of Hose and Fittings; Passenger Train Handling; Graduated Release; Methods of Interesting and Instructing Railway Employees in the Maintenance and Operation of the Air Brake Equipment; Recommended Practice. The reports of the secretary, treasurer and various committees are also included.

*Estimating Building Costs and Appraising Buildings.* By Frank E. Barnes, supervising building valuation engineer, New York Central Lines. 5 in. by 7 in., 822 pages, illustrated. Bound in leather. Published by the McGraw-Hill Book Company, New York.

The information which has been collected and published in this volume has been developed to serve three fundamental purposes, which are given by the author as follows: (1) To aid the contractor or estimator in determining the amount of labor required; (2) to furnish him with prices of labor and materials that will enable him to check his estimates, and (3) to equip him with full data on the present day costs of replacing various types of existing buildings built between 1890 and 1923. The data has been arranged in the form of tables wherever possible and detailed descriptions have been omitted except where they are necessary to illustrate the use of the tables. As a further aid to estimators, detailed descriptions of the methods of installing various kinds of building materials and some designing data have been included. The data in the chapter on Appraisals of Buildings was prepared by a committee of railroad valuation engineers.

*Marine Structures, Their Deterioration and Preservation.* By William G. Atwood and A. A. Johnson. 534 pages, 169 illustrations, 6 in. by 9 in. Bound in cloth. Published by the National Research Council, Washington, D. C. Price \$10.

This book comprises a report of the Committee on Marine Piling Investigations of the National Research Council, of which the authors were director of investigations and assistant to the director respectively. Following the serious inroads of marine borers on railway and other structures in San Francisco harbor from 1917 to 1920 and the threat of similar attacks elsewhere on the Pacific and Atlantic coasts, the National Research Council organized a committee on marine piling late in 1921 to study the protection of wooden structures from the attacks of borers and to conduct an investigation into the value and proper use of various substitutes for timber. This committee received the co-operation of numerous railways, several departments of the Federal government and other organizations and the results of its studies are incorporated in this volume.

Descriptions of the more common species of marine borers, their distribution and economic importance, are presented at some length. There follow discussions of timbers which

are immune from the attacks of these borers and service records of structures built with them. Sixty-four pages are devoted to a study of various methods for the protection of timber and to recommendations regarding the conditions under which the use of each of these methods should be considered. A chapter on the substitutes for timber contains service records and inspection reports of a large number of concrete and metal structures. A large part of the book is devoted to a description of conditions in the harbors along the Atlantic and Pacific coasts. The report concludes with a bibliography of more than 2,000 references. It contains a vast amount of information of value to those confronted with the problem of constructing or maintaining docks or other structures along the sea coast, and includes a large amount of data not heretofore available.

*Proceedings of the Sixteenth Annual Convention of the International Railway Fuel Association 1924.* Edited by the treasurer, J. B. Hutchinson, 6,000 Michigan Avenue, Chicago, Ill. 487 pages, bound in leather.

This book contains the proceedings of the Sixteenth Annual Convention of the International Railway Fuel Association which was held in Chicago, May 26 to 29, 1924. The reports submitted include the Proper Distribution of Locomotive Fuel; Feed Water Heaters; Symposium on New England, Australia, Canada, South West Territory and other Central States and Mid-Continent; Oil and Coal Locomotive Fuel; Firing Practice; Fuel Stations; Coal Storage; Mining, Preparation and Inspection of Coal for Locomotive Use; Co-operation with the American Railway Association; Purchase of Coal by the Railroads; Fuel Loss at Locomotive Terminals, and What Is the Responsibility of the Division Superintendent in Fuel Conservation?

*Railway Accounting Procedure, 1924 Edition.* Edited by E. R. Woodson, secretary of the Railway Accounting Officers' Association. 6 in. by 9 in., 623 pages. Bound in cloth. Published by Railway Accounting Officers' Association, 1116 Woodward Building, Washington, D. C. Price \$3.00.

Each edition of this valuable volume appears following the annual meetings of the Railway Accounting Officers' Association. Each new edition represents an improvement and amplification of its predecessors because embodied in it are the latest recommendations and suggestions for improvement in railway accounting practices formulated by the efficient committees of the association and adopted by the organization at the annual meeting. The book becomes more valuable each year if for nothing else than because it contains additional material made to exist as a result of the work that is done year by year. The book this year contains 623 pages. The similar volume published a year ago contained 573. The additional 50 pages represent the work that was done between the annual meeting in 1923 and that at San Francisco in 1924. An important feature is the addition of a section on statistics in which are shown 10 new standard forms for statistics suggested by the recently established committee on statistics and embodying the first constructive work to be done by the new committee.

"Railway Accounting Procedure" is often referred to as the accounting officers' bible, for the reason that railway accounting officers use it so constantly and depend upon it so thoroughly. The statement is sometimes made that "Railway Accounting Procedure" is the most practical, usable and helpful book that has ever been issued in connection with railway accounting; this from the standpoint of the officers and employees who are actually engaged in the work and are concerned with the practical aspects of the subject.

An interesting feature, in connection with the standard forms shown in the book, is that the large printing houses throughout the country make plates of these standard forms

and supply them to the carriers at a minimum cost, due to the saving in composition and also in the paper requirements.

It must be accepted as a tribute to the railway accounting officers and to the profession of accounting that the various rules, recommendations, forms, etc., shown in this book, are in general use throughout the country, without dispute, without wrangling and without the exercise of pressure from any government agency or other outside force—a splendid example of what can be accomplished by co-operative effort among the railroads and the railroad officers.

## Books and Special Articles of Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

### Books and Pamphlets

*Marketing Canadian Wheat*, by Theo D. Hammatt. Canada grain act, elevator system, car service, etc. U. S. Dept. of Comm. Trade information bull. No. 251. 123 p. maps. Pub. by Govt. print. off., Washington. *Gratis* from Dept. of Commerce.

*Modern Locomotive Manual, Fundamental Principles of Construction and Operation. Questions and Answers. Whys and Wherefores*, by Fred Lewis Jones. Pub. by National Technical Institute, New York City.

### Periodical Articles

*Baggage Men and the Four-Pawed Tourist*, by Eleanor Booth Simmons. Work of the Animal Travelers' Aid Society, and the names of some of the best baggage-men on various roads, with whom to ship one's pets. New York Herald-Tribune Magazine, August 31, 1924, p. 11.

*A Difference of Fifty-Odd Years in Railroadings*. The first U. P. locomotive to cross the continent, and a St. Paul electric locomotive. Current Opinion, August, 1924, p. 172.

*Government Railroads vs. Farm Taxes*. Editorial. "Government ownership would simply mean a flat increase in taxation of from 7 to over 50 per cent in the agricultural counties." Country Gentleman, August 30, 1924, p. 14.

*"Pat" Crowley, of the New York Central*, by Edward Hungerford. A sketch of the New York Central's president. Nation's Business, September, 1924, p. 19-21.

*A Railroad That Charges Ten Cents a Mile*, by John A. Kuder. The Eagles Mere Railroad, 10 miles long, a narrow-gauge railroad in Pennsylvania. New York Herald Tribune Magazine, August 31, 1924, p. 6.

*Recent Development in Electric Locomotives*, by N. W. Storer. Mechanical Engineering, September, 1924, p. 523-528.

*Standardization versus Individuality*, by Luther D. Burlingame. "A word of caution against the too eager adoption of ill-advised standards." Mechanical Engineering, September, 1924, p. 529-530, 538.

*Traffic Control and Safety*, by E. W. James. Reviews existing methods and devices for promoting highway safety including those used for protecting grade crossings. Public Roads, August, 1924, p. 1-9, 19.

*The Farmer Grain Merger*, by Philip S. Rose. "The biggest event of the year in co-operative marketing circles was the merger last month in Chicago of five of the largest old-line grain companies into a single farmer-controlled grain-marketing company. Country Gentleman, August 23, 1924, p. 3-4, 24.

*Oris and Mantis. The Inspiring Story of the Silent Brothers Van Sweringen of Cleveland*, Walter Davenport. Liberty, August 23, 1924, p. 45-46.



## Letters to the Editor

[The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]

### "The Passenger Is Always Right"

POUGHKEEPSIE, N. Y.

TO THE EDITOR:

Recent information printed in your paper emboldens me to adopt the above heading.

The other morning I saw at X station fifty passengers who were right but who had to submit to a thing that was wrong. A local train in which the first two coaches were measurably filled, had a third coach, which had been kept locked, that was to be used mainly for these fifty, ready to board the train at this station.

The station agent, of course, should have had these fifty people massed at a point on the station platform opposite the stopping place of the rear end of this third car, or approximately there. The passengers were "right" in desiring to be there. But the agent did not advise the passengers; nor did he do anything. And, the car-vestibule doors being closed, the passengers who might prefer to run back to the third-car entrance found that it was of no use to do so. They all entered at the front of the train, and with numerous big bags, suitcases and packages, walked through one or two cars. I suppose the vestibule doors were left unopened because the conductor, like most conductors, wanted to have each passenger get into the train under his own eyes; and because (also like other conductors) he had the habit of not making each brakeman do everything possible to smooth the passenger's journey.

This is a trifle, do you say? It is on things equally trifling that we base numerous congratulatory messages to trainmen and others whom we desire to commend for efficiency.

Every station agent, everywhere, should do all that reasonably can be done to aid outgoing passengers in taking up positions on the station platform at a point where they can enter the rear end of the car in which they will be most likely to find seats; and trainmen should of course co-operate.

While on the subject of passengers' wishes, it is pleasing to observe that in the handsomest station in New York City the gatemen assume that the passenger is right in deciding what train to take; that is, they are not strict to require him to show his ticket when his hands are full, or his time is short. Consider the feelings of 50 passengers who have been waiting from 10 to 30 minutes for an overdue train at one of the big union stations (where everybody changing cars has to go up a long flight of stairs) and who are finally bunched at a 26-inch gate and then have to stand five minutes longer, with the mercury at 90. When, finally, the gate is opened the gateman punches every ticket as carefully and slowly as though each passenger were a fresh arrival from the backwoods, whereas they all have completed a part of their journey already. The general manager, if he were in the gateman's place, would suspend the rule and let 'em through. It is desirable to remember that the hotel keepers, whose example we are supposed to be following, do not always mean that the guest is absolutely right; but, rather, that it is good policy to let him think that he is right.

DUTCH.

## A Railway Conductor on Government Ownership

HOLDREDGE, Neb.

TO THE EDITOR:

Your article on "Railway Employees and Government Ownership" in the August 16 number is very interesting. Government control, with the big increases it brought to the employees, did seem to intoxicate them temporarily and convert them all into enthusiastic supporters of government ownership via the Plumb plan route. Since that time, after pondering over the advantages and disadvantages of it, it would be found, if a census of opinion were taken, that a majority are well satisfied with government supervision.

As to the labor leaders, the intoxication seems to have left them in that condition permanently. Apparently, they have lost sight of the fact that they are supposed to be looking out for the men by whom they are hired, and are endeavoring to feather their nests with some soft political jobs which they feel certain will come to them should government ownership come to pass.

I have read a great many times in labor papers how the capitalistic controlled press refuse to print news or opinions that are not favorable to the cause they sponsor, so I naturally supposed one belonging to an organization would be allowed to publish in the magazine of his order an individual opinion on subjects that were of interest to the members whether they agreed with the set policy or not. I sent such a letter to the editor of the Railway Conductor, in which I criticised the Plumb plan and also the utter inconsistency of trying to get a raise in wages and at the same time to reduce the rates of the railroads. The letter was returned with the notation that it wouldn't be consistent to print it as it didn't agree with the resolutions adopted at the last convention.

Labor leaders of the 16 railroad organizations have pledged these solidly for LaFollette. Since these men have been spending so much time of late acting in various ways as political managers they have gotten out of touch with the real situation among the employees and think they are putting out solid facts. It will probably surprise them after the vote has been cast how many of their own men resent having their votes delivered in solid blocks without having anything to say as to who the candidate shall be. There are others who might be willing to vote for a candidate who had the backing of the leaders if they had picked out one whose loyalty to this country had never been questioned.

L. F. JAGGER,

Conductor, Chicago, Burlington & Quincy Railroad.



A Reading Train, Derailed When It Struck an Automobile at a Highway Crossing

# Canting of Rails Now Favored by Many Roads

## Investigation Shows a Marked Tendency Toward the Adoption of This Practice in Track Construction

ONE OF THE PROBLEMS of track design and maintenance regarding which much difference of opinion prevails is that of canting rail inward in order to provide a bearing surface more nearly coinciding with the contour of car and locomotive wheels. This question has long been the subject of active discussion and many changes in practice have been made on the railroads in respect to rail inclination. The following article outlines the developments which have taken place in this direction on 36 representative roads in the United States and Canada.

The information in this article was obtained from a questionnaire which was sent to 37 typical railroads, from which 36 replies were received. The replies to this questionnaire were, in many cases, in considerable detail. The main points have been tabulated to show quickly the roads involved, whether canting is employed and if so the period of use, how obtained, and the degree of inclination. The questions which were submitted are as follows:

1. The extent to which you are canting your rail?
2. The length of time you have followed this practice?
3. The degree of inclination?
4. The manner in which it is secured?
5. Where rail is canted, have any special difficulties been encountered, and are any special provisions made through switches, etc.?
6. The effect on track maintenance?
7. Other results?
8. Your conclusions regarding its merits?

### Canting Is Practiced by a Majority of Roads Reporting

A study of the replies discloses the interesting fact that the majority of the roads cant the rail, although the amount of the cant varies between an inclination of 1 in 20 and 1 in 40 to 44. As might be expected, there are many roads on which only a small mileage of rail is canted, because of the practice having been adopted recently and followed principally with the laying of new rail. Fully half of the roads, however, have been canting the rail as a regular practice for from 7 to 10 years, while a few have followed this procedure for as long as 20 years. There is also to be considered the fact that many of the roads had canted rail experimentally previous to its adoption as standard practice either for one class of rail or track or for all classes of rail and main track.

### Degree of Inclination Follows Two Tendencies

Of the 36 roads replying, 21 are canting rail and favor this practice, and where it has been in use for some time, report beneficial results from it. Six roads state that they have installed experimental sections of track and nine state that they are not canting rail. Of the six roads reported as experimenting with canted rail, one states that it has observed no particular advantage as yet and expresses the belief that an inclination of 1 in 20 is too great and that 1 in 44 is a more practical maximum; the remainder state that although it is yet too early to arrive at any definite conclusions the results to date indicate possible benefits and the subject is well worth further study and investigation. Of the nine roads reported as not canting, three made no statement other than the fact that this practice is not followed; four are opposed to canting or are not convinced that it is justifiable, and two state that no decision has been arrived at yet as to future tie plate standards, although the subject is now under consideration. One of these latter roads expresses a belief that there are many desirable features to canting and that an inclination of 1 in 44 is a practical maximum.

It is particularly apparent that the question of the degree of inclination or the amount of cant has developed two dis-

tinct lines of thought, with the result that practically all of the slopes in use today fall in two general classes. Of the 21 roads which have adopted canting, 11 use a slope of 1 in 20 (in one case, 1 in 24), 8 use 1 in 40 or 44, one uses 1 in 20 on the inside rail of curves of 6 deg. and over, and 1 in 40 on tangents and light curves and the outside rail of heavy curves, and one adzes to the inclination necessary to secure a full bearing on the rail. Proponents of the 1 in 20 cant advocate and use this inclination for several reasons, the primary ones being that this slope corresponds to the angle or coning of new or newly turned wheels, thus producing a center bearing of the wheel on the rail; that this inclination offers an adequate amount of turning in of the rail to offset

A SUMMARY OF THE REPLIES TO THE QUESTIONNAIRE

Road	Is rail Canted?	How long?	Amt. of slope?	How secured?
A.T.&S.F.	Exp.	Since 1923.....	not given	Inclined plates
A.C.L.	No			
B.&O.	Yes	Since 1921.....	1 to 20.....	Inclined plates
B.&A.	Yes	7 or 8 years....	1 to 44.....	Inclined plates
B.&M.	No			
C.N.R.	Yes	About 5 years..	1 to 20.....	Inclined plates
C.P.R.	Yes	About 10 years..	1 to 20.....	Inclined plates
C.&O.	Yes	About 7 years..	1 to 20.....	Inclined plates
C.&A.	Yes	12 years or more.	1 to 44.....	Inclined plates
C.&E.I.	No			
C.N.W.	Exp.	3 years.....	1 to 20.....	Inclined plates
B.&O.	Yes	15 years or more.	1 to 40.....	Inclined plates
C.M.&S.P.	Yes	Since 1905.....	Not given...	Adzing since 1910
C.R.I.&P.	No			
C.C.&St.L.	Exp.	About 4 years....	1 to 20.....	Inclined plates
D.L.&W.	Yes	10 years.....	1 to 40.....	Adzed with machine
Erie	Yes	Since 1922.....	1 to 40.....	Inclined plates
G.N.	Yes	17 years or more.	to 20.....	Both plates and adzing
I.C.	Exp.	3 years.....	1 to 20.....	Inclined plates
L.V.	Yes	About 8 years....	1 to 20.....	Inclined plates
I.&N.	No			
M.C.	Yes	About 9 years....	1 to 20.....	Inclined plates
M.P.	Yes	Not given.....	1 to 20 and 1 to 20 or 30.	Both plates and adzing
N.C.&St.L.	Yes	About 3 years....	1 to 40.....	Inclined plates
N.Y.C.	No			
N.Y.N.H.&H.	Yes	About 4 years....	1 to 20.....	Inclined plates
N.&W.	Yes	Since 1909.....	1 to 20.....	Both plates and adzing
N.P.	Yes	2 years.....	1 to 20 or 24.	Inclined plates
P.R.R.	No			
P.&L.E.	No			
Reading	Exp.	1 year.....	1 to 20.....	Inclined plates
R.F.&P.	Yes	About 5 years....	1 to 20.....	Inclined plates
S.A.L.	No			
S.P.				
Tex.&La.	Yes	First year.....	1 to 44.....	Inclined plates
S.P.				
Pac. System	Yes	1 year.....	1 to 44.....	Inclined plates
U. P.	Exp.	3 years.....	1 to 20.....	Inclined plates

the forces tending to turn the rail out, and that in actual use it has given uniform wear on the rail head, lessened or eliminated regaging of track, etc. While it is apparently generally agreed that a better center bearing would be secured on new rail with new wheels, many have felt that the wear of wheels is such that a 1 in 20 cant is not justified and that a more practical and less theoretical degree of inclination with a consequently better wear of the rail is obtained with a cant of approximately 1 in 40 or 44.

The required inclination of the rail, whether 1 in 20 or 1 in 40 or 44, is obtained in practically all cases by the use of inclined tie-plates. The principal variations from this are the practices of the Delaware Lackawanna & Western, the Chicago, Milwaukee & St. Paul, and the Norfolk & Western. On the first named road, all ties are adzed at the treating plant to a 1 in 40 cant, and flat tie plates are used. The St. Paul adzes its ties to whatever slope is necessary to secure a full bearing on the rail. The Norfolk & Western uses canted plates under all new rail laid on its lines with the exception of tangents where 100-lb. rail is still being used



without tie-plates. On such tangents the ties are adzed to give an approximate of 1 in 20 to the rail.

### Roads Do Not Cant Rails

#### Through Turnouts or Crossings

The use of canted rail in European countries considerably antedates its use in this country and the practice was carried out in all its details to what might be termed a complete exactitude. In other words, the switches and frogs were designed either to carry the same inclination throughout, or special provisions were made in the fastening to change from the vertical to the inclined without causing any twist or torsional strain in the rail. When the announcement was made about four years ago that the French railways were going to the vertical rail, one of the main points cited was this question of connecting the running rails with switches and frogs. Contrary to the European practice, the American roads have never resorted to the use of canted switches and frogs or of special fastenings of any nature. Many roads which are not canting rail, feel that the joining up of canted running rails with vertical appliances such as frogs and switch points, introduces a torsional strain in the rail that

that canted rail holds to gage much better than vertical rail in the same locations and that this was particularly evident on curves. Others mentioned that flange wear on wheels is decreased, the coefficient of adhesion of engine drivers was increased and riding track obtained more easily. It was pointed out that the use of an inclined plate permitted a thicker plate at the point where a plate nominally undergoes the greatest strain, and that this could be secured with no increase in weight. The breakage of plates is reduced and there is less cutting-in or mechanical wear of the ties where canted rail is used. The lessened amount of regaging (obviated entirely on the Lehigh Valley, for instance), the longer life of the rail and fastenings, the decreased mechanical wear of the ties, result in a decreased amount of labor for maintenance work. While this amount is difficult to estimate, it represents a saving in maintenance costs, which is thus attributed to the use of canted rail.

While the question relative to conclusions regarding the merits of canting was largely answered in conjunction with questions 6 and 7 and from the viewpoint of the results obtained, a number of roads stated their conclusions in a slightly different form. Thus there are found statements along the following lines:

"We are firmly convinced that the canting of rails is a move in the right direction."—Boston & Albany.

"We believe that the benefits obtained in rail of high section warrant the practice of canting."—Chesapeake & Ohio.

"We would not consider any other practice than the one which we now have, through the long years of practical experience, demonstrated to be the practice of wisdom."—Chicago & Alton.

"All of our division engineers report very favorably on the use of canted tie plates."—Erie.

"... think well of canting and the practice is being extended on our line."—Great Northern.

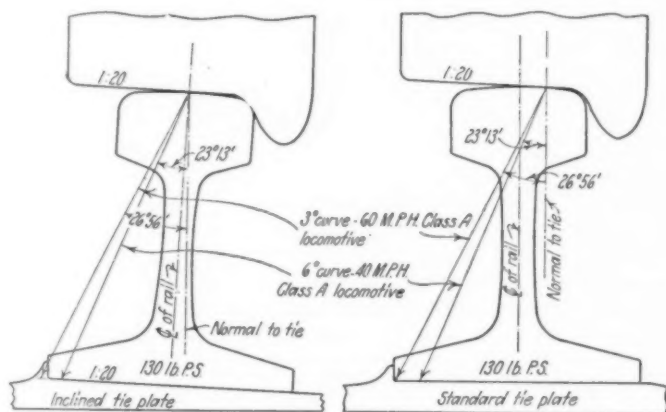
"There is evidently considerable merit in having rail inclined and it is possible that more of this will be done in the future."—Illinois Central.

"Our final conclusions from over eight years' experience are, that it is essential for efficient and economical maintenance to cant the rail in and that the proportion of 1 to 20 is just about right."—Lehigh Valley.

"My conclusions as to rail inclination were reached some time ago and I see no reason to change my opinion, that it is the proper thing to do."—Richmond, Fredericksburg & Potomac.

"... now that we have actually laid considerable rail with canted tie plates, we are more than pleased with results."—Southern Pacific Company (Pacific System).

"... a canted tie plate is well worth while on all new main track construction, both tangents and curves."—Union Pacific.



The Effect of Canting on the Load on the Ties

is not to be desired. It is therefore interesting to observe that only 1 of the 21 roads reported as canting rail, states that any difficulties arose from this reason, and then only of a minor nature in several locations. Many of the roads make no provision whatever for changing from the canted rail to the vertical, using canted tie plates up to the frog or switch point and under the lead rails through the turnout, the change in inclination furnishing no difficulty in connecting up or in securing a satisfactory bearing after a few trains have passed over the track. Other roads, however, have made provisions to bring about the change in inclination more gradually. This is usually done by adzing the ties slightly for about one rail length at either end of a turnout or crossing frog. In such installations, flat tie plates are used through the full length of the turnout. Only one road, the Erie, has apparently attempted the use of canted rail through switches, and this only in a few cases where the canting was carried through the switches as much as possible, by removing the slide plates and adzing the switch timbers accordingly. The general opinion of the roads which are canting rail, as manifested by the answers, is that either plan of procedure gives no trouble, needs no particular attention and eliminates what would otherwise be an expensive refinement.

### Railroads Report Economies

#### Resulting from This Practice

The answers to questions 6, 7 and 8 were largely combined and show a surprising uniformity on the part of the roads which are canting their rail. Practically all agree that the rail receives a better bearing on the head, more even wear and greater life. Another result equally well stressed was

The advantages derived from canted rail as given in the preceding part of this article, as well as the views enumerated above, are not shared by a number of roads. In order that the negative side of the question may be better shown, the views of two roads, the Pennsylvania and the Rock Island, are given here in part. The views of the first road are contained in replies to a summary of the chief points in favor of canting rail.

Point 1. An appreciable lengthening of the life of ties is accomplished by canting the rail so as to bring the bearing of the wheel as nearly as practicable in the center of the rail head, as it is clear that the tendency for rails to cut into the tie, requiring an additional amount of adzing, is avoided. Comment: The reasoning in this answer is unsound, because the avoidance of cutting of tie plate into the tie is brought about by using one of suitable size and properly proportioned inside and outside of the rail without any regard to the question of canting. Such avoidance has been brought about on the Pennsylvania System with flat plates many times by the use of a suitable size and properly proportioned plate, combined with adequate maintenance. In fact, the tendency to cut into the tie at the outer edge of the tie plates is promoted by canting the rail instead of diminishing it, as shown by the diagram illustrating the lines of resultant force produced by a heavy locomotive when passing around curves of three and six degrees respectively. These lines were deter-

### Pennsylvania Opposes Canting

mined by a study of the locomotive tests on the Atlantic division to determine outward pressure, when rounding curves, of the new designs of electric locomotives and by mathematical development. Attention is called to a part of the problem which has not usually been mentioned—the theoretical advantage of the axial center bearing on the rail head by canting the rail is realized only when the rolling stock is standing still with new wheels on new rails or when running without side lurching. The latter is a very rare condition, as there is nearly always a side thrust on the rail, even on tangent, and in the case with our lines with a large percentage of curvature, the side thrust is very important. The vertical load and side thrust produce a resultant pressure which falls far outside of the center of the vertical axis of the rail, and with a center bearing on the rail this position of the resultant pressure is at a greater distance from the center when there is a bearing between the center and the gage of the rail head. What is gained by a center bearing with the inclined rail is largely lost by the additional distance of the line of resultant pressure from the center. Instead, therefore, of the value of canting being greater on curves, as against the tendency to cut ties, the condition for cutting is aggravated.

Point 2. The wear on the head of the rail will be more symmetrical and probably the life of the rail will be lengthened, especially on curves, by centering the wheel bearing as nearly as practicable on the rail head. Comment: With worn wheels and rail heads, which is the prevailing state of affairs, the advantages which might arise from a center bearing on the rail head are theoretical and indefinite. In some cases where the wear on the rail head has been very uneven, the cause has been poor maintenance with an improperly proportioned tie plate on the low rail of a curve, which must bear more than its share of the weight of a slowly moving freight train around a curve which is superelevated for the higher speed passenger traffic. With all of these years of experience with upright rail we know very well that for the most part the wear on the head is quite symmetrical and even. Rail may be found in the track with any degree of uneven wear on any kind of a tie plate, according to the lack of proper maintenance.

Point 3. Canting of the rail counteracts to some extent the side pressure of the wheels, especially in running around curves, and also the side blows on tangents caused by the nosing of engines. Comment: This is unsound reasoning, already commented upon in point one. The claim that canting of the rail reduces the wear on the outer rail of curves very materially, which would follow from this, has not been substantiated by tests we have conducted. Rail wear and pressure on the outside rail are due to the flange of the locomotive wheels changing the direction from a tangent around the curve, and certainly are not affected by inclination. The two subjects do not belong together.

Point 4. Canting will remove some of the stresses in the rail by the wheel riding over the web in place of one side, suggesting the conclusion also that transverse fissures may be due to the eccentric bearing on the side of the head, which would be hindered by the canting. Comment: Transverse fissures are not caused by the traffic borne by the rails, but by defects in some of the processes of manufacture. They are developed in service by the wheel loads, and the heavier the wheel loads and the greater the tonnage of traffic, the more rapid the development in all probability.

Point 5. Rail with inclined tie plates holds the gage better. Comment: This is a fallacy, as already explained in point one, as the gage can be held securely and properly by an adequate number of spike fastenings. In fact, the experience of the French railroad systems discloses the fact that, especially on tangent lines, there is a tendency to excessively tight gage with inclined tie plates.

Point 6. There is less cost in maintenance. Comment: No information of record has been furnished to support this statement with proof.

Point 7. By having the center bearing it is thought that there is less battering of rail joints. Comment: No evidence of this has ever been collected, but it is not believed that the inclination of the rail has any appreciable effect in reducing battering, which is more likely to be the cause of poor maintenance combined with weak joints.

Point 8. Inclining the rail does not increase the friction of moving loads. Comment: This is a negative advantage, as it is not understood that rail laid vertically does that either.

Point 9. The universal desire of those favoring rail inclination is that such inclination should not be carried through turnouts on account of requiring considerable expense in the construction of special devices without justifiable results. The claim is made that the change from the canted to the vertical position is so slight and so easily accomplished that careful observation must be made to determine where such changes occur. It is stated that this change has been made on curves on the Cincinnati division, where one-half of the curve was laid with canted tie plates and the other half with the flat tie plates. Comment: This looks like a rough and unbusinesslike way of dealing with the problem, and it is only in the United States and Canada that such looseness in construction has been practiced. In England and Europe, where the practice originated, it has been the custom to carry the inclination through the turnouts.

Point 10. As the top inclined surface helps the kicking out of the tie plate by wedge action, the shape of the bottom of the plate deserves attention, and the belief is expressed that a multiplicity of spike holes in the tie from the use of anchor spikes is more destructive and lessens the life of the tie much more than the use of a tie plate with properly designed corrugations on its base. Comment: The best answer to this is the satisfactory result of the use of such well spiked tie plates for many years on that portion of the system west of Pittsburgh, and the fact that although the original design of tie plate had ribs for engaging in the tie it has long been recognized by railroads that such a tie plate was objectionable and the use of that style has been on the decrease.

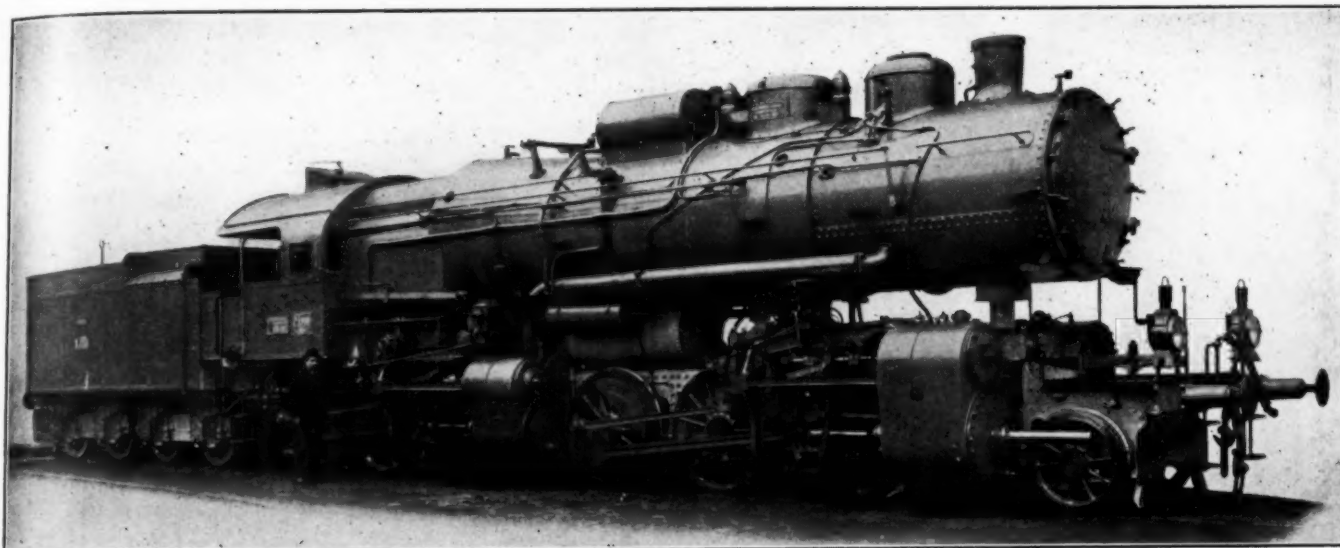
#### Rock Island Questions Value of Canting

The following represents the views of the Rock Island on this question:

When using a canted tie plate a strain is put into the canted rail when it joins a frog or a crossing, and there are also difficulties in connection with its use through switches. The principle of trying to bring the center of the load onto the center of the rail is attractive, but with a properly constructed tie plate which holds the rail to gage, no apparent weakness is developed in the rail, due to the fact that the theoretical bearing comes about  $\frac{5}{8}$  in. from the center of the rail. Also the wear of the wheels is such that the theoretical canting in the tread of the wheel only remains on the wheel a few days, or a few weeks at the outside, after the wheel is put into service, or, in the case of a driver, after the driver is freshly turned.

If any one will go into a railroad yard and take contours of 100 cars, hit or miss, he will find that 75 percent of them have either a flat or a concave tread, so that, in fact, the bearing of 75 per cent of the wheels that pass over the rail is over the center of the rail. The canted tie plate is a very pretty theory, but it amounts to little or nothing in practice. It was evidently the result of the old practice, in the days of light rail and before the introduction of the tie plate, of the track man's canting in of the rail in an effort to prevent the movement of the rail outward and the resulting widening of the gage. He had no thought of bringing the load onto the center of the rail, but was only trying to hold his track to gage. The introduction of the modern type of tie plate has done away with the necessity for canting the rail for that purpose.





*Mallet Locomotive with Brotan Boiler Built for Heavy Freight Service*

## Hungarian Mallet with Brotan Type Boiler

Sixty Locomotives of This Design Were Built by the Hungarian State Railways for Heavy Freight Service

THE LOCOMOTIVE illustrated and described in this article was the first of its type built at Budapest by the Hungarian State Railways and was put into service in the territory between Fiume and Moravica. The service results from this first locomotive were highly satisfactory and as a consequence 59 more of the same design were constructed and are now being operated in heavy freight service over sections of road where grades as heavy as  $2\frac{1}{2}$  per cent are frequently encountered.

Probably the most interesting feature of design is the Brotan firebox boiler which has a greater heating surface than is usually found in European locomotive boilers. The barrel of the boiler is in three sections; the middle section has a diameter of  $68\frac{29}{32}$  in. and the plates are  $\frac{3}{4}$  in. thick, while the rear section is conical with a maximum diameter of  $78\frac{3}{4}$  in., the plates being  $\frac{7}{8}$  in. thick. The circumferential seams of the boiler are lapped and double riveted; the longitudinal seams have double straps of unequal width and are triple riveted. The copper tube sheet of the firebox is  $1\frac{3}{16}$  in. thick, the front tube sheet is of iron  $1\frac{7}{64}$  in. thick. The steam dome is  $20\frac{7}{16}$  in. high and has a diameter of  $35\frac{7}{16}$  in.; it consists of two parts; viz., the flanged shell which is  $19\frac{1}{32}$  in. thick, and the dome which is  $\frac{7}{8}$  in. thick and which has a cover  $25\frac{9}{16}$  in. in diameter. The smoke box is built up of two plates and has a door consisting of two dished plates which is held against the cast steel door frame by 12 clamps. Connecting with the stack, which is not continued down inside the smoke box, is a conical, tiltable spark arrester extending down to the exhaust pipe which ends on a level with the center of the boiler. Behind the opening for the stack is fitted a half conical smoke duct.

The throttle valve on the steam dome is a double disc gate valve; two safety valves of four-inch diameter, with a high lift, are fitted on a special pad back of the dome. On account of the size of the boiler two strainers, each with six cells of  $21\frac{5}{8}$  in. diameter, were fitted, the feed water being

led to these through a feed-head by means of a non-suction steamjet pump.

The Schmidt type superheater has 36 units in four rows of nine each. The Brotan type firebox, the largest of its kind, is 122 in. long between protecting plates and  $79\frac{1}{2}$  in. wide. The cast steel base frame is built up in four sections with flanged joints and its front end is connected to the boiler by three elbows. In later construction the base frame is in one piece. The side walls of the firebox are formed by seamless drawn wrought iron water tubes which end in two separate headers, and are connected with each other at the rear by a coupling piece. To insure tightness the headers project into the boiler for a distance of  $22\frac{9}{16}$  in. and are there supported by heavy angle bars. Furthermore, to better shut off the gases of combustion toward the top, two more horizontal water tubes were built in between the two headers, reaching from the rear coupling piece to the tube sheet. The rear wall of the firebox is formed by six water tubes on each side, while forward a fireproof wall completes the enclosure. The fire door is a sliding door in halves, the opening being formed by a cast steel frame; combustion with but little smoke formation is attained by a long fire dome; a tilting grate serves readily to remove the slag formed by inferior coal.

The saddle connecting the cylinders of the rear truck is 59 in. deep and is rigidly riveted to the last boiler section. Thus secured, the boiler rests by means of a front and rear sliding surface of the base frame on the tie girders of the trucks, the last one of which is provided with a brass liner. Ahead of the middle axle of the forward truck is located a cast steel girder having an inside riveted connection with the boiler at the top and resting at the bottom on bushed guides. Two coupled plate springs  $70\frac{7}{8}$  in. long, having  $3\frac{15}{16}$  in. side play bring the forward truck back to the mid position.

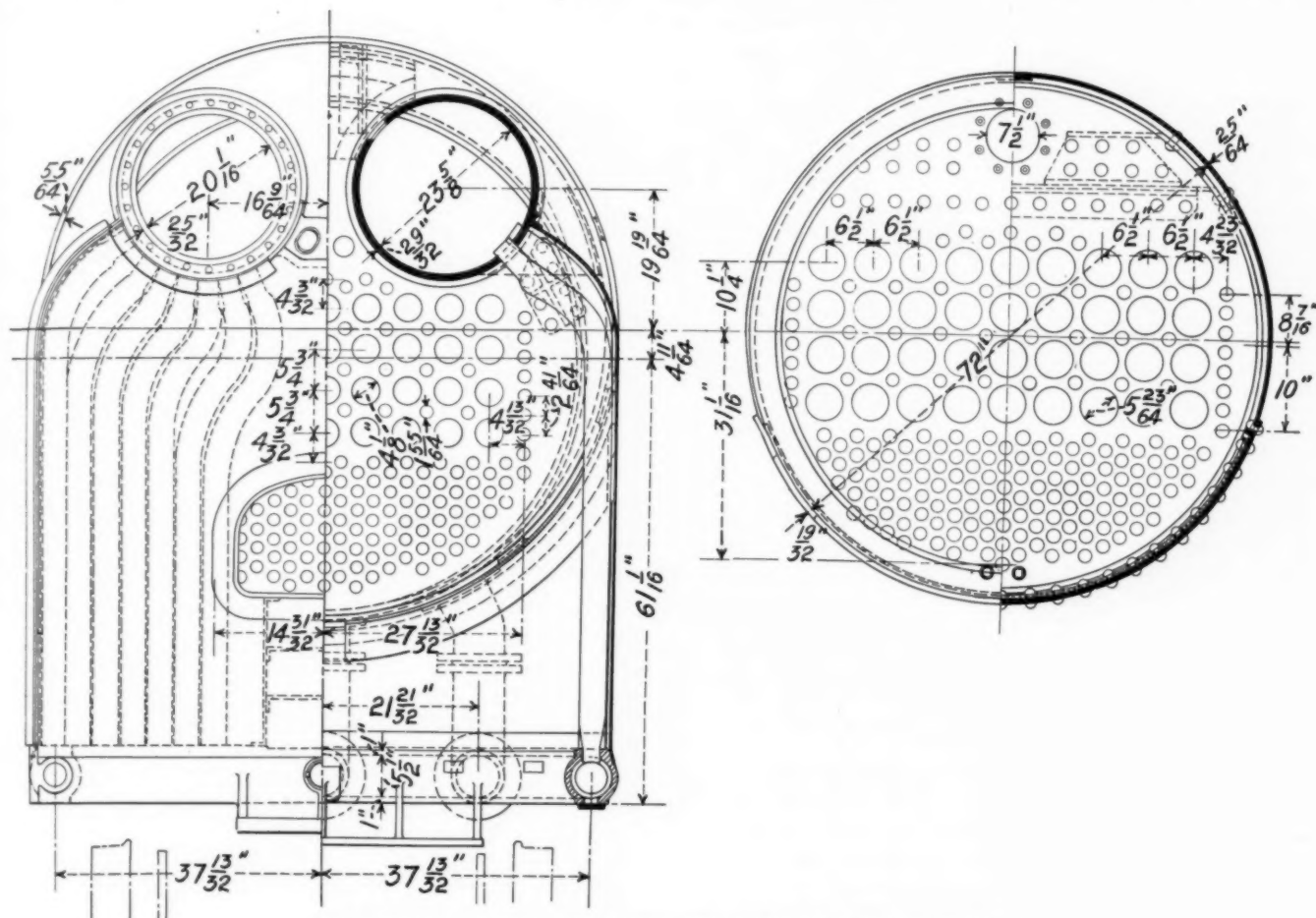
The ash pan has a horizontal bottom divided into two sections by a recess for the middle axle of the rear truck;





each of the sections has two trap doors in the bottom which can be operated from the cab. A branch line from the left pressure pipe of the steam jet pump serves for sprinkling the

thick,  $43 \frac{5}{16}$  in. apart. Due to the frame for the high pressure cylinders being located under the firebox, the horizontal stiffening of this main girder was limited, but

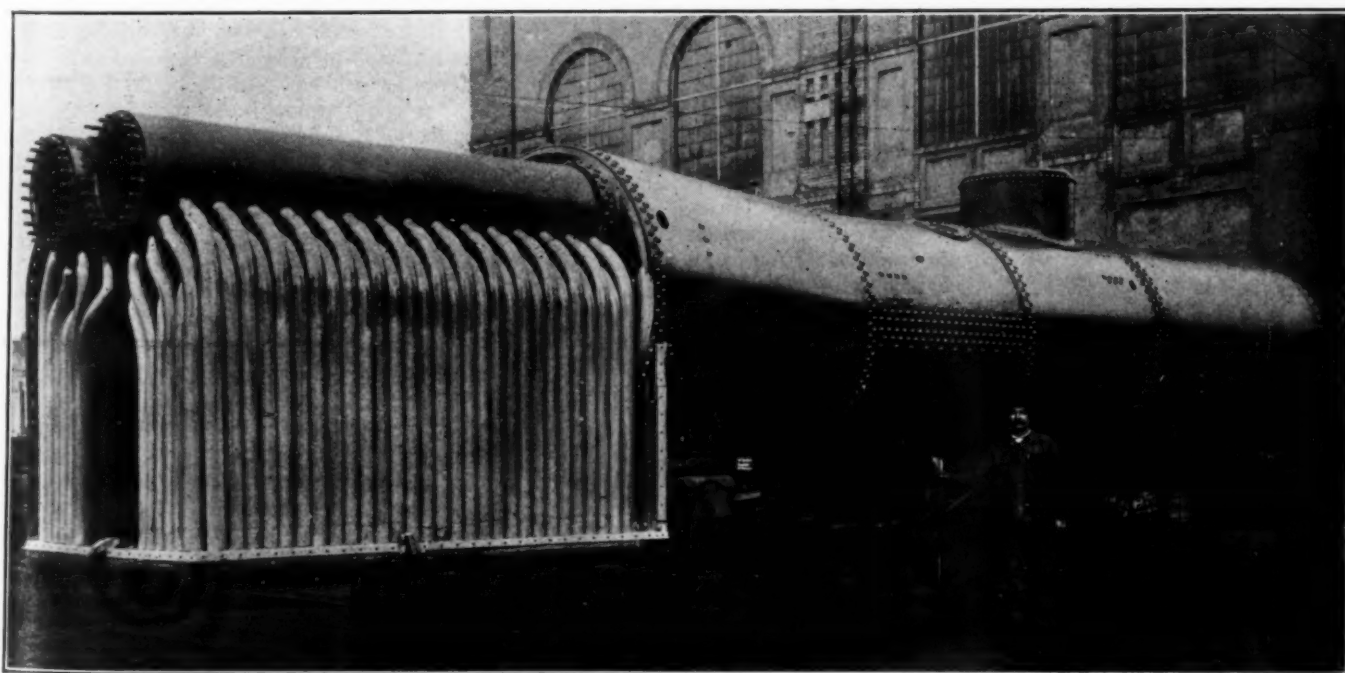


Cross Section of Brotan Boiler on Hungarian Mallet Locomotive

coal while one from the right serves the same purpose for the ash pan.

Each wheel base consists of two continuous frames  $1 \frac{1}{8}$  in.

it was possible to fit, in addition to a horizontal angle frame above the closed driving box openings, several wrought iron stiffeners between the wheels at the lower edge of the frame.



General View of the Brotan Boiler Showing Arrangement of Water Tubes and Drums

The driving axle which is curved to a radius of 76 in., is fitted with upper supporting springs of eleven plates each and has 1 21/32 in. play on each side. The supporting springs of all driving axles are below and are connected up by two spring links; they consist of twelve plates with 35 7/16 in. hanger centers. The last wheel of the forward truck has smaller flanges, the first wheel of the rear truck has 1/2 in. lateral on each side, and the second and seventh axles of the locomotive run in fixed bearings. The flanges of the first, second and fifth wheels, which are subject to the most wear on curves, are lubricated. The connection of the two truck frames is located somewhat ahead of the center of high pressure cylinders, there being long swivel pins in the cross tie of the latter.

For the distribution of steam, outside valve gear of the Hensinger-Walschaert type and piston valves are employed. A hand operated starting slide valve at the right hand side of the boiler takes the live steam from the steam supply pipe and allows it to pass on to the cross connection, the air valve of which limits the pressure to 110 lb. In most cases, especially in freight trains which are never coupled taut, the high pressure cylinders alone suffice for starting.

The rear stuffing boxes of the piston rods are fitted with metal packing; the piston rods of the high pressure cylinders do not extend through, while the low pressure piston rods extend through at the forward end and run in enclosed guides. In the first two locomotives built, two large air-suction valves were fitted in the steam supply pipes while in the later ones they were mounted on the steam chest. All cylinder heads have safety valves to guard against excessive pressure.

### Equipment

The lubrication of the pistons and slide valves is supplied by two oil pumps, each having 12 feeds, the oil being pre-heated; they are operated from the rocker at the right-hand side of the locomotive by means of two adjustable levers. For running idle both engine groups are fitted with hand operated cocks for equalizing the pressure.

Reversing is accomplished by a threaded spindle operating on a main shaft located to the rear of the high pressure cylinders; from this shaft tie rods on each side connect with the valve operating rod of the low pressure cylinders as the firebox interferes with running this rod continuously as is usually the case. The tie rod connects from the center with the valve operating rod of the high pressure cylinders in such a way that it is free to follow the movements of the truck.

The adjustable screw coupling between the locomotive and the tender is designed for a pull of 23 tons as required by the standard specifications.

Forming part of the equipment is the automatic Westinghouse emergency brake and the non-automatic Henry brake, with a braking power equal to 69.6 per cent of the weight on drivers; a speedometer for a maximum speed of 37 m.p.h.; a sander operated by compressed air which takes sand from a large sand box and throws it in front of each front driver. In addition to this a small sand box, attached to the cab, is provided for the driving wheels of the rear truck. The forward part of the frame is arranged for fitting a snow plow.

The cab has sliding windows at the sides, a ventilating hood and an acetylene ceiling lamp. Each header on the boiler is equipped with a water gage; gage cocks are not provided.

The tender has four wheel trucks which are equipped with the same brakes as the locomotive.

TABLE OF DIMENSIONS, WEIGHTS AND PROPORTIONS

H. P. cylinders, diameter.....	20.47 in.
L. P. cylinders, diameter.....	33.46 in.
Stroke.....	25.98 in.
H. P. piston valves, diameter.....	9.84 in.
L. P. piston valves, diameter.....	13.39 in.

### Weights in working order:

On drivers.....	214,000 lb.
On front truck.....	27,000 lb.
Total engine.....	241,000 lb.
Tender.....	126,000 lb.

### Wheel bases:

Driving.....	27 ft. 8 1/4 in.
Rigid.....	11 ft. 1 1/4 in.
Total engine.....	39 ft. 0 1/4 in.
Total engine and tender.....	63 ft. 0 in.

### Wheels, diameter outside tires:

Driving.....	56.69 in.
Front truck.....	37.40 in.

### Boiler:

Steam pressure.....	220 lb.
Diameter, first ring, inside.....	68.9 in.
Firebox, length and width.....	122 in. by 79 1/2 in.
Tubes, number and diameter.....	180—2 1/2 in.
Flues, number and diameter.....	36—5 1/2 in.
Water tubes.....	70—3 3/4 in.
Length over tube sheet.....	18 ft.—6 3/4 in.
Grate area.....	54.7 sq. ft.

### Heating surfaces:

Firebox and water tubes.....	247 sq. ft.
Tubes and flues.....	2,671 sq. ft.
Total evaporative.....	2,918 sq. ft.
Superheating.....	857 sq. ft.
Comb. evaporative and superheating.....	3,775 sq. ft.

### Tender:

Water capacity.....	6,800 gal.
Fuel capacity.....	8.8 tons
Rated tractive force, 75 per cent.....	61,500 lb.

### Weight proportions:

Weight on drivers ÷ tractive force.....	3.48
Total weight engine ÷ comb. heating surface.....	63.9

### Boiler proportions:

Tractive force ÷ comb. heating surface.....	16.3
Tractive force × dia. drivers ÷ comb. heating surface.....	9.45
Firebox heating surface, per cent of evap. heating surface.....	9.3
Superheat. surface, per cent of evap. heating surface.....	32.0

## Modification of Railroad Labor Law Urged

**A**BOLITION OF THE RAILROAD LABOR BOARD in its present form was advocated by John W. Davis, Democratic candidate for the presidency, in a Labor Day address at Wheeling, W. Va., in which he said that the labor provisions of the transportation act should be rewritten to "provide machinery through which there may be fair and calm discussion of the subject of dispute by both employer and employee; mediation if necessary by non-prejudiced persons and thoroughgoing publicity of all the facts."

President Coolidge, in a Labor Day speech to a delegation of labor leaders who called on him at the White House also discussed the labor provisions of the law very briefly, saying that "we have been making an interesting experiment in relation to railroad labor," which has "no doubt been a step in advance" but that "it could probably be modified, through mutual agreement, to the benefit of all concerned." It was later stated officially at the White House that the President would be inclined to welcome a plan for a substitute for the present plan of the Railroad Labor Board if the railroads and the labor organizations could reach an agreement, and that while he had not given special study to the subject he is not particularly insistent upon having public representation on the board, although inclined to favor it.

Mr. Davis in his speech said it "seems fundamental that the adjustment board when created should consist of representatives of the employers on the one hand and representatives of the particular craft concerned in the controversy on the other" and that "it is better in every way that boards of adjustment or boards of investigation and review, instead of being fixed in their personnel, should be filled by appointments made from time to time as controversies arise."

Senator La Follette, in a radio address on Labor Day, did not discuss the labor law specifically but promised, if elected, to work for the repeal of the transportation act, behind which, he asserted, the Interstate Commerce Commission "has taken refuge in its refusal to reduce the present exorbitant railroad rates."



# Unions Essential in Any Co-operation Program\*

## Co-operation Implies Mutual Education, Not Merely Instruction for Employees

By George Soule  
Director, the Labor Bureau, Inc.

### I—FUNDAMENTALS

THE BASIS of co-operation between management and employees can be nothing else than *mutual confidence*. The goal of co-operation must be *service to the public*, and any consequent benefits must be justly shared by employer and employees.

The method of co-operation must be one that will arouse the interest and intelligence of each individual employee, and bring such interest *collectively to bear on concrete problems at the place of work*, whether that place be shop, round-house, locomotive cab or office.

Co-operation is not instruction of one group of railroad personnel by another group, it is *mutual education for mutual service*.

### II—MUTUAL CONFIDENCE

No man can co-operate with another man whom he does not trust or respect. The causes of distrust on railroads have been the suspicion on the part of each group that the other groups were working for their own interests without regard for the interests of all. Employees, suffering occasional wage reductions, irregular employment, arbitrary discharge, etc., have felt that managements were working solely in the interest of profits. In order to protect themselves they have formed labor organizations. Managements, dealing with such organizations, have often felt that the aim of the latter was to give as little work as possible for as high wages as possible. It has been believed that such organizations, expressing distrust, were the causes of distrust. Occasional attempts have been made to destroy their influence, and either to return to individual relationships between employee and management, or to substitute employee organizations imbued with the attitude of management. The consequent conflicts have often intensified mutual distrust.

Confidence cannot be restored, in a human enterprise as large as a railroad, by ignoring labor organizations. This has both a natural and a historical cause.

In an establishment small enough so that each employee can know the executive, and so that the executive can regulate the treatment of each employee, a just employer may perhaps retain confidence without the intervention of rules or labor organizations. But in an establishment of widely scattered units, and with thousands of employees and executives, the employee must have some other than a personal assurance that he will receive just treatment. The assurance must take the form of rules—a system of industrial law—covering the details of wages, hours and conditions of work. Such law may, it is true, be given down by superior authority. But the employee has no assurance that the law is just unless he has a hand in making it, and he has no assurance that the law will be justly executed unless he can exercise pressure for its just administration by the executive. All this is familiar in the political state; it is equally obvious when applied to an industrial government.

It is, therefore, fundamental that the only basis of justice—and hence of confidence—in a large enterprise, is the existence of labor organizations capable of exercising a real power in the making of the rules of employment, and in their

administration. No man or organization is free to agree to the making of laws unless he is free to disagree. It therefore follows that a labor organization, in order to be genuine and effective, must derive its major power elsewhere than from the consent of management. It must elect its own officers without interference from management, it must support its activities out of its own treasury, it must levy its own dues or taxes. These requirements rule out the ordinary "employee representation" plan or "company union" as opposed to genuine, autonomous labor unions. A genuine union, because it has the power to refuse co-operation, also has the power to extend and organize co-operation for a positive purpose.

The historical necessity for dealing with labor organizations as a basis for creating confidence arises from the fact that these organizations, comprising approximately 75 per cent of railway employees, have through many years of struggle and sacrifice established themselves in the confidence of the employees, have developed capable and trusted leadership, and cannot be set aside without a revolution in the basic mental habits of over a million and a half men.

If mutual confidence is to be created, therefore, established labor organizations must first be accepted as an integral part of the machinery of railway employee administration. The route to confidence lies not backward, but forward.

### III—SERVICE TO THE PUBLIC

Mutual distrust between railway employers and employees cannot be wiped out by superficial measures. The remedy must go to the heart of the situation.

If employers or employees are seeking merely their own respective interests, they are likely to treat each other unjustly. Even just treatment, accompanied by such restricted aims, is often a cause for mistrust. Railways are supposed to be public service corporations. Are they so, in fact? They should be, and their policy should be directed with that aim. If genuine service to the public, rather than private profit, is the chief aim of management, and if employees can be induced to believe that this is so, a positive current is set up in all activities in place of a negative one. None of us cares to co-operate with another man merely to increase his profit—in such a relationship cautious bargaining is encouraged. But two men both serving a larger aim have a powerful motive for co-operation.

The incentive of public service may be a greater one than most of us realize. Consider for a moment the postal employees. These faithful public servants are organized in trade unions, which are recognized by the government, yet they have never struck and would not do so. Ever since 1914 their small salaries have lagged behind the rising cost of living. They cannot be driven to produce by piece-work or bonus plans, or by fear of discharge, because they are under the civil service, with classified yearly salaries. Due to the low salaries paid, the service has been sadly undermanned and the employees overworked. Each letter carrier, for instance, now handles 50 per cent larger volume of mail than in 1914, while his purchasing power is 14 per cent less. Yet the post office has given reasonably satisfactory service. This is due almost entirely to the devotion of the employees,

\* A paper submitted in the *Railway Age's* contest on co-operation.

who under severe handicaps have stuck to their posts. They realize that no one is making a profit from their work. As many of them have testified, they are sustained by a pride in the fact that they are engaged in public service.

Genuine public service on the part of railroads need not, however, mean self-sacrifice or hardship. Railroads are ultimately dependent on public favor for their welfare. Good service also means service at a profit. An efficient road, with rolling stock, motive power, terminals and right of way in good condition and well operated, not only furnishes adequate and prompt transportation to the public, it also eliminates large items of waste, cuts unit costs and increases net operating income. Who is to be the beneficiary of such results? If owners or management alone, the slogan of co-operation for public service will sound hollow indeed to the employees. The public should receive part of the benefit of efficiency. Management should receive part. But the part accruing to the railroad must also be shared justly with co-operating employees. The method of sharing should be agreed upon with the employees' organizations. The whole proceeding may be well defined, and carried on in the light of day.

The employees' share may take the form of pleasanter working environment and conditions, steadier employment, insurance against unemployment and higher wages. Such measures not only furnish a reward for efficiency, they are integral parts of an efficient organization.

#### IV—COLLECTIVE ACTION AT PLACE OF WORK

Co-operation between labor organizations and management for public service in the expectation of mutual benefit is no more than a phrase unless it is expressed in concrete terms at the place of work. Efficiency can only arise from the efforts of each individual employee, and of each group or gang of workers. These men must understand, from their daily experience, both the spirit and the method of the plan. The shop, the cab, the tower, the roundhouse, the yard and the office are the places where service is rendered and where changes in that service are made.

To translate the above aim into concrete terms it is, therefore, necessary to enlist the support of the local union organizations. In order to build a basis of confidence, this must be done through regular union channels. The message may come to the men on the job from their national or international officials, who have assented to the plan. The men may debate it, ask questions, satisfy their doubts, give it a vote of confidence. Their own regular committeemen or officials should be their agents in dealing with local management about improved methods. These men, accustomed to handling grievances, also have or will develop ideas about eliminating the causes of the friction which gives rise to grievances. In this way the organization of the men themselves, with its experienced leadership, may be enlisted in the cause of co-operation for service, and the interest of every man aroused at the point where his work is done.

This is the first test of co-operation for service. If the management begins by ignoring the union, it begins with an insuperable handicap. If it begins by extending co-operation to the men's own organization, it has enlisted the prestige and power of the union, previously used chiefly for negative and protective purposes, in the positive task to be done. It has given assurance that its motive is genuine.

The immediate results of regular joint conferences for better methods between local management and local union officials may seem small, but they will clear up difficulties which bother the men and must be obviated before larger matters can be reached. The men will feel the first beneficial result of co-operation in the increased smoothness of their daily work.

Little by little, interest in larger efficiency is built up on a sound basis.

#### V—MUTUAL EDUCATION

It is essential, in such a plan, that neither management nor union should begin with the idea that it already knows the solution for every problem, embodied in a cut-and-dried plan, which must be "put over" on the other side. Ninety-nine times out of a hundred such a plan is not well conceived. Even in the hundredth case, it cannot be well operated unless it arises out of the experience of the men who are to operate it.

Co-operation for service is really an educational experience. The joint committee meets, facing mutual problems. It casts about for ways to meet these problems. Both the discovery of the difficulties and the methods of overcoming them are developed by the experience and ingenuity of both sides.

Engineering advice may be solicited, but should be employed as expert assistance rather than as constituted authority. It is the mutual job of men and management to produce service. It is the job of the engineer to assist them to do so, through expert advice.

Methods that will be effective in these circumstances are, therefore, those known to sound education. Rote processes are not educational. The men must understand what they are doing, and why, and how. The management must understand the desires of the men. For this reason, frequent discussion of progress by the whole group, as well as by the committee, is helpful. All kinds of easily read charts—such as those showing delay or progress—will illuminate the matter.

The making of a schedule, the matching of performance against schedule, the matching of the performance of one group on a standardized job against that of other groups—such methods are educational, especially if the causes of comparative failure and success are analyzed. Similar measurements may be applied to the benefits of co-operation to the men, in such matters as employment and pay.

Especially it must be remembered that quality counts as much as speed or quantity of production. Speed without quality may be obtained by mechanical speeding-up or bonus devices, but all-round quality arises only from the enlisting of the creative forces of the worker through his intelligence and imagination. This is specially true of the complicated and responsible duties of railroad workers.

#### VI—THE ESSENTIALS OF PROGRESS

When mutual confidence has been created by the acceptance of labor organizations as essential parts of railway administration—not only to help establish just rules and practices, but also to assist in constructive efforts—when co-operation for public service has been established in the hope of mutually shared benefits, and when the principle has been worked out in concrete detail on the job, the essentials of good morale and progress exist. An educative process is going on which will educate management as well as men. No one can foretell the possibilities inherent in such a plan. It is a living, a growing process, which is capable of being carried as far as innate human capacity permits. It is a process which is incompatible with narrow vision, selfish advantage, deceit, bluff, or mere contentiousness. As far as railroad executives and employees are capable of following it, it will contribute to a sound and efficient railroad system in a sense impossible under any plan not based on similar fundamentals.

FIFTY MILLION PASSENGERS have been carried successfully and safely during the past seven years by the Northern Pacific Railway; or, to be exact, 49,825,161. This statement is made by A. B. Smith, passenger traffic manager of the road, who says also that during the same time the automatic block signals of the Northern Pacific have registered 270,471,762 movements.



# The Union Continuous Train Control Systems

## Development and Operation of the Two-Speed and Three-Speed Apparatus as Applied to Traffic Requirements

THE CONTINUOUS automatic train control developed by the Union Switch & Signal Company as being installed on the Atchison, Topeka & Santa Fe between Chicago and Shopton, Ia., provides the engineman with a continuously-visible indicator on his locomotive from which he can at all times determine at what speed it is permissible to run. Any change in conditions immediately ahead of him is registered instantly on this indicator in sufficient time to enable him to increase or decrease his speed as the case may be. In unforeseen occurrences such as a switch being opened, or a rail breaking immediately ahead of him this indicator gives him warning and the brakes are applied automatically. It is required that the engineer take some definite action (to be described later) at certain points to prove that he is alert, failing which his train will be stopped.

Under proper restriction the continuous system permits one train to follow another into an occupied block without stopping, provided the second train does not exceed the pre-

making an emergency application, nor does it ever interfere with the operation of his independent engine brake.

Whenever an automatic application is made the air is cut off the engineer's valve. The automatic valve will not restore and give the engineman air until two conditions are fulfilled, i. e., the engineer's valve must be put to lap—and the speed brought below the new speed limit.

The acknowledging valve *E* (see Fig. 1) is operated by a small lever located conveniently to the engineman's hand, which it is necessary to operate under certain conditions hereafter explained, to prove that he is alert. This action is called "acknowledging."

In leaving train control territory the engineman must operate the lever of the cut-out switch *F* at the point of exit. This action in conjunction with the passage of the train over a specially energized section cuts out the train control apparatus entirely until the engine once more enters such territory when the apparatus automatically cuts in again

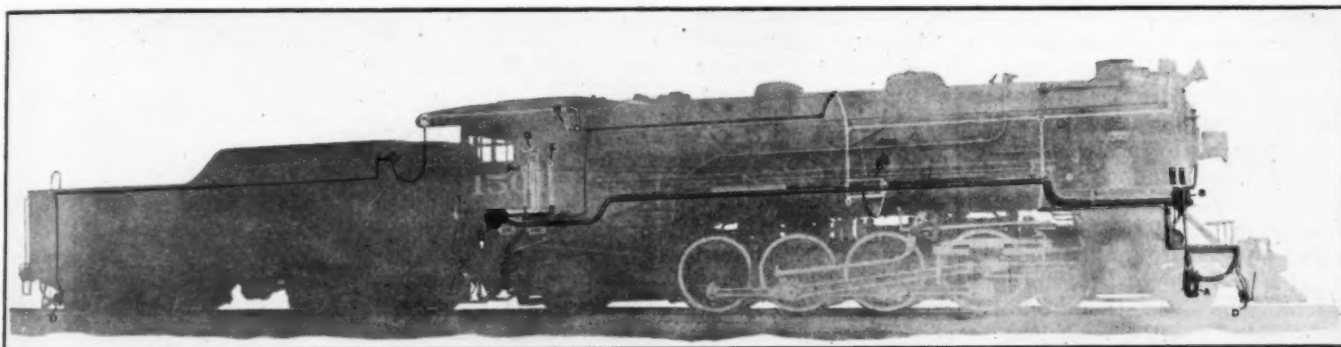


Fig. 1—Typical Arrangement of Locomotive Equipment for Union Three-Speed Train Control Apparatus

determined minimum speed. If the first train should clear the block by accelerating or taking a siding the fact is recorded instantly by the indicator on the second train, which can then in turn accelerate.

The continuous system operates on the "closed circuit" principle which requires a continuous flow of current between the track and the train to permit the train to run at any speed above the predetermined minimum. The failure of that current to flow will stop the train, or bring its speed below the minimum permitted. No trackway elements other than the running rails themselves are required. The wayside control consists of wire connections and other materials commonly used in signaling practice, such as relays and transformers. Hence, no questions of clearances are involved.

### Use of Engineman's Valve Not Interfered With

An important feature of the Union Switch & Signal Company's system is the fact that no change has been made in the manual operation of the engineman's valve *G*, shown in Fig. 1. The brakes are applied automatically through the medium of the brake application valve *C*, usually placed immediately below the cab as shown. The engineman can manipulate the engineer's valve as heretofore without interference from the automatic control except that he cannot effect a release under certain conditions. The emergency brake application is not made, the greatest automatic application being the regular service reduction. On the other hand, the train control does not prevent the engineman from

without any action on the engineman's part. If the engineman should neglect to operate the cut-out switch *F* at the point of exit the brakes will be applied. As the train leaves control territory the indicator light goes out and is relighted when it re-enters such territory.

### Reverse Moves, Double-heading and Special Cut-outs

Except in the case of suburban engines and others engaged in similar service, most railroads do not permit locomotives to exceed a speed of 15 or 20 miles per hour when running tender first. The continuous system enforces this rule in that an engine equipped with train control apparatus for forward running only, cannot exceed the minimum speed in the normal direction of traffic when running tender first because the tender wheels shunt the axle circuit ahead of the pickup coils. Suburban engines may be equipped with an extra pair of pickup coils at the back of the tender and the engine circuit shifted from the front to the rear coils and vice versa through a circuit controller operated by the reversing lever, thus permitting running at speed with the tender ahead.

The pneumatic cut-out shown in Fig. 2, is a part of the brake application group *C* and consists of a stop cock operated by a handle which is normally secured in the "cut in" position by a seal. If for any cause, it becomes necessary to cut out the train control apparatus on the road the engineman breaks the seal, thereby releasing the handle which can be turned so as to cut out the pneumatic portion of the train control apparatus, leaving the engineman free to operate his

air brake manually. This pneumatic cut-out does not affect the electrical apparatus, consequently if the control is cut out due to a pneumatic or mechanical failure alone, the engineer still has the benefit of his indicator. When engines are double-headed, or used as pushers, the train control equipment, except on the leading engine, is automatically cut out of service by the customary train pipe connections.

In the manual operation of air brakes it is usually the practice when making an application, especially in long freight trains, to make a full service reduction in train pipe pressure in two stages. The first a comparatively light one of about 7 lb. "to bunch the slack," followed by a further reduction of about 13 lb. after a short interval. This is known as the "split reduction." Split reduction is accomplished in the Union train control system.

In bucking snow it is often necessary to exceed the minimum speed limit of 20 miles an hour. In such cases snow plows can be equipped with two receiving coils as a permanent part of their equipment. These coils can be connected to the electrical train control equipment of the first engine behind the plow, and by so doing the plow can be pushed at any speed which the track conditions will permit under full train control protection. This applies to both the two-speed and three-speed systems.

#### Characteristics of the Two-Speed System

The Union Switch & Signal Company has two types of continuous train control, known respectively as the "two-speed" and "three-speed" systems. The same fundamental principles of operation are common to both and the principles of operation as described thus far are the same for the two systems. The three-speed system, as its name implies, permits the trains to run in occupied blocks at a predetermined minimum speed and at unlimited speed in unoccupied blocks. This consequently requires that the braking point in the rear of every potential stopping point such as a signal, must be sufficiently far from that signal to insure that any train running at its highest possible speed will be stopped before reaching the signal if the brakes are applied automatically on reaching the braking point.

The locomotive equipment as shown in Fig. 1, consists of: the drive *A*, the governor and drive connections *B*, the brake application valve *C*, the receiver coils *D*, the acknowledgment valve *E*, the cutout switch *F* used when leaving train control territory, the engineer's valve *G*, the speed limit indicator *H* and the equipment case *K* for housing the train control relay and other electrical apparatus. (The second set of receiver coils shown at the rear of the tender are used for the three-speed system only.) In addition to this the headlight generator is used to furnish current for the operation and control of the electrical apparatus on the engine while the compressed air is, of course, supplied from the regular compressor.

The "track element" of the two-speed system is the combination of a transformer secondary, the running rails themselves, the front wheels and axle of the engine, and the contacts of a relay, all constituting an electrical circuit. The alternating current mains furnish energy to the primaries of transformers placed at the exit end of each block, thus inducing a flow in the secondary above referred to. The secondary current flows down one rail towards an approaching or standing train, travels across the first wheels and axle of the engine to the opposite rail and returns to the transformer secondary. This is known as the "axle circuit."

The alternating current flowing along the rails induces a second current in the receiver coils *D* carried on the front end of the locomotive about six inches above the rail and protected from injury by the pilot. The current so induced in the engine coils is amplified by special power vacuum tubes energized from the headlight generator which in turn energizes the train control relay on the engine.

The train control relay through its front and back contacts causes one or the other of two lights to burn in indicator *H*. One of these lights indicates that no speed restriction exists and burns when the axle circuit is closed and the engine relay energized. The other light indicating the minimum speed restriction, burns when the axle circuit is closed and the engine relay energized. The other light indicating the minimum speed restriction, burns when the axle circuit is shunted or opened from any cause and the engine relay de-energized. The unrestricted speed is designated by the letter *H* and the restricted by *L*, meaning "high" and "low" speeds respectively.

#### Function of Governor and Speed Control

The train control relay also controls a local circuit which energizes an electro-pneumatic valve in the air brake connections. This remains energized as long as the axle circuit is closed but if opened from any cause it is de-energized and a brake application results. Under normal operation the axle current is controlled by contacts on the signal and the track relay of the signal system but its continuity may also be interrupted by a broken or disconnected wire or a broken rail, in which case the indicator will change to show low speed and the brakes will be applied. If the control of the brakes depended on the axle circuit alone it is evident from the foregoing that whenever this circuit was opened the brakes would be applied and remain so until released by some other act. The locomotive is, however, equipped with a centrifugal governor, shown at *B*, Fig. 1, operating from the leading truck. The function of the governor is to shift a pneumatic valve when the speed of the train falls below the minimum and by so doing permits the release of the brakes by the engineer without stopping the train. The train can proceed through an occupied block as long as it does not exceed the minimum speed. If it should exceed this speed, however, the governor reverses the valve and the brakes are applied.

In order to avoid an automatic application at the braking point in the rear of a stop signal the engineer must always, irrespective of speed, operate the acknowledging lever, and if running above the minimum speed take proper action to bring the train below that minimum. If these two acts are performed he will be able to release after decelerating below the minimum and can continue to run at or below that speed. If he fails to "acknowledge," his brakes are applied and held for about 40 sec. before they can be released, even though the train has decelerated below the new speed limit.

The point at which an automatic application will be received after passing the braking point in the rear of a "stop" signal will depend on the speed at which that point was passed. The rule is that "the slower the speed the greater the distance the train can run before the brakes are applied"—the function which provides for this is called the "delayed application." This is effected by valves actuated by the governor working in conjunction with the automatic application valve.

#### Operation of Trains Under the Two-Speed System

Assume that a train is starting from a railroad terminal on its regular run over a double track division on which three-position automatic signals are installed and where the braking points are placed at the caution signals, and that the train control installation starts outside the terminal area and extends the entire length of the division. As the train reaches the point where the two-speed control begins, indicated by a marker, it passes over a permanently-energized section which automatically cuts in the engine equipment and causes one of the two indicator lights to burn, depending on track conditions ahead. In the case described the track is clear, hence the *H* light is displayed, indicating unrestricted speed, thereby permitting the train to continue at any speed desired.

After running some distance it closes in on a preceding



train and as a result finds the next block signal displaying "caution." When it passes this signal the engineman operates the acknowledgement lever and makes a brake application. The indicator light changed from *H* to *L* as the caution signal was passed, indicating restricted or low speed. Due to the engineman's action in acknowledging the caution signal and his further action in promptly reducing his speed below the prescribed minimum, which is assumed to be 20 miles an hour, an automatic application has been anticipated and the train enters the occupied block ahead without stopping at the home signal.

After running for some distance at less than 20 miles an hour he reaches a slight descending grade and inadvertently exceeds that speed. The engine governor acts and an automatic application is received, which again brings the speed below 20 miles an hour. He releases the brakes manually without having to stop and continues at 15 miles an hour to allow a safe margin for possible variations. The preceding train has meanwhile increased its lead and cleared the block, consequently, the next signal ahead of the second train changes from "stop" to "caution." This signal was not

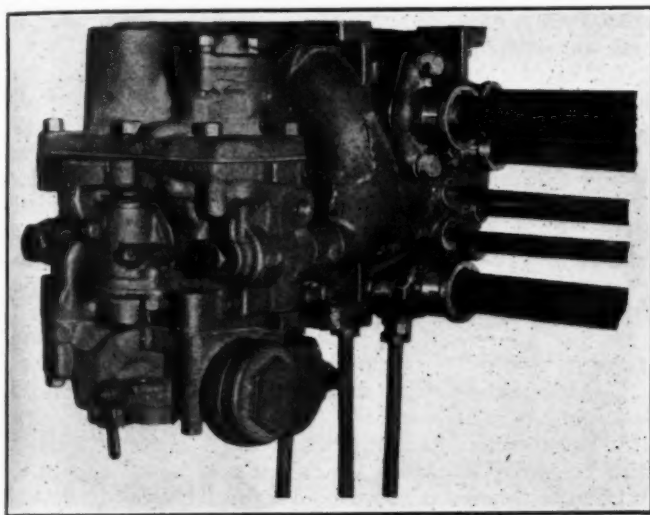


Fig. 2—Brake Application Group C, Showing Pneumatic Cutout Lever

visible to the engineman of the second train when the change occurred, being around a curve, but the indicator changed simultaneously from *L* to *H*, thereby permitting him to accelerate. He increases the speed accordingly but forgets to acknowledge the caution signal as he passes it, consequently an automatic application is received, and in this case, as a penalty for neglecting to acknowledge the caution signal the brakes are applied and held for about 40 sec. before they can be released, even though the train has decelerated below the new speed limit. After this interval he is able to release his brakes in the usual manner and again proceeds at low speed.

The first train is now so far ahead that he runs under clear signals for a considerable distance at unrestricted speed with the indicator displaying *H*. Suddenly, without any warning, it changes to *L*, and the brakes are applied automatically. There is a sharp curve immediately ahead, beyond which an industrial spur track leaves the main line. It may be that some cars that had been pushed beyond the fouling point of the siding a few seconds before are fouling the main track. If necessary the engineman can augment the automatic service application by moving his brake handle to the emergency position.

The three-speed continuous train control system possesses all the advantages of the two-speed type already enumerated and a number of others mentioned in the following descrip-

tion. This system imposes three speeds—high, medium, and low—on a train in accordance with track conditions as indicated by the three signal indications, "clear," "caution" and "stop." High, or a predetermined maximum speed, is imposed in clear blocks, medium speed between caution signals and the braking point of a stop signal, and low, or a predetermined minimum speed, between this braking point and the stop signal and also in occupied blocks.

### Design of Three-Speed System

In the two-speed system a train can approach the braking point of a stop signal at unrestricted speed, hence the braking point must be sufficiently in the rear of the signal to insure that any train running at its highest speed will be stopped before reaching the signal if the brakes are applied automatically at, or before reaching, the braking point. However, in the three-speed system the highest speeds at which any train can approach the braking point of a stop signal are the medium speeds (usually not over 45 miles an hour for passenger and 30 miles an hour for freight trains). Hence, the braking points in the three-speed system can be located much closer to potential stopping points than in the two-speed system.

In laying out a signaling system in accordance with the principles of three-speed train control, the caution signals should be located so that a train running at the predetermined maximum speeds (usually not over 70 miles an hour for passenger and 50 for freight trains) will be brought below their medium speeds respectively, if the brakes are applied automatically at, or before reaching, a signal displaying "caution."

In the three-speed system there are in effect two braking points in each block, one at the caution signal and the second in the rear of the home signal as described in the preceding paragraph. The first is usually called the *A* point and the latter the *B* point.

The point at which an automatic application will be received after passing the *A* or *B* points in the rear of a "stop" signal will depend on the speed at which those points were passed. The rule is that "the slower the speed the greater the distance the train can run before the brakes are applied"—the function which provides for this is called the "delayed application." This is effected by valves actuated by the governor working in conjunction with the automatic application valve.

In addition to the engine equipment mentioned in describing the two-speed system, the three-speed system has an additional set of receiver coils at the rear of the locomotive. The operation of the speed control and the speed indicator are somewhat different, as will be mentioned later.

One "track element" of the three-speed system is the combination of a transformer secondary, the running rails, the front wheels and the axle of the engine, which with the contacts of a relay constitute an electric circuit. Alternating current mains furnish energy to the primaries of transformers placed at the exit end of each block, thus inducing a flow in the secondary above referred to. The secondary current flows down one rail toward an approaching or standing train, travels across the first wheels and axle of the engine to the opposite rail and returns to the transformer secondary. This is known as the *axle circuit*.

The alternating current flowing along the rails induces a second current in the receiver coils *D* carried on the front end of the locomotive about six inches above the rail and protected from injury by the pilot. The current so induced in the engine coils is amplified by special power vacuum tubes energized from the headlight generator which in turn energizes one coil of a three-position relay on the engine.

The other coil of the train control relay is energized by a second track element known as the "loop circuit." The loop circuit is the combination of a transformer secondary, the

track relay contacts, and a line wire for each track running the entire length of the block on the pole line and connected through resistance coils to both rails of the track at both ends of the block. The current from the transformer secondary traverses both rails of the track in parallel and returns over the line wire. This current is picked up by the collector coils *D* on the rear end of the locomotive tender, and through amplifiers energizes the local coils of the engine relay referred to above.

The speed limit indicator of the three-speed system has three lights, *H* indicating maximum speed, *M* medium speed and *L* minimum speed. These three lights are controlled by the contacts of the relay described above, the *H* light burning when the contacts are swung to the right, the *M* light when swung to the left and the *L* light when the contacts are vertical.

The train control relay also controls local circuits which energize electro-pneumatic valves in the air brake connections. These valves, working in conjunction with the engine governor, determine the speeds at which the train may run to comply with the track conditions immediately ahead.

#### Operation of Trains Under Three-Speed System

The operation of a train over a division equipped with the three-speed system in connection with three-position automatic block signaling on double track will be as follows: After the train reaches the point where the system begins, as indicated by a marker, it passes over a permanently energized section which automatically cuts in the engine equipment and causes one of the three indicator lights to burn, depending on the track conditions ahead of the train. If it is assumed that in this particular case the track ahead is clear, the *H* light is displayed, indicating maximum speed which is assumed in this case to be 70 miles an hour for passenger and 50 miles an hour for freight trains.

The train proceeds for some distance at speeds varying with local conditions but below the maximum permitted, until it begins to run down a slight descending grade where it exceeds the maximum speed and receives an automatic application in consequence. The engineman laps his brake valve, the speed falls below the maximum, and he is then able to release the brakes and continue as heretofore.

After running for some distance the train closes in on a preceding train and as a result finds the next block signal displaying caution. On passing the caution signal the engineman takes action according to the speed to avoid an automatic application, i. e., he handles the train by brake application, shutting off steam or otherwise, to get below the new speed limit before the automatic application would otherwise take effect. After passing the caution signal the speed limit indicator changes from *H* to *M*, indicating that he can continue to run at the medium speed.

The speed of the train falls below the medium and he continues on through the block without exceeding this limit until he reaches the braking point indicated by the marker, at which point he operates the acknowledgement lever and in addition handles the train, as at the caution signal, to bring from the medium to the minimum speed of 20 miles an hour and thereby avoid an automatic application. As it passes the braking point the indicator changes from *M* to *L*, indicating that he must not run above the minimum speed of 20 miles an hour.

It will be noted that by taking proper action the engineman has anticipated automatic applications at both the caution signal and the braking point and has consequently retained full control of the train throughout the entire block. Due to the foregoing the engineman is permitted to pass the stop signal at the minimum speed which he does and continues through the occupied block at or below that speed, keeping a lookout for the train ahead. If while running in this block he exceeds the minimum speed momentarily, the

governor acts and automatically brings the train down below that speed where he releases the brakes and continues as before. While still traveling at this speed the train ahead takes a siding and clears the main track, thus causing the block signal to change from "stop" to "clear." When this change occurred the block signal was not in sight of the engineman of the second train but the indicator changed simultaneously from slow to high speed, thereby permitting the engineman to accelerate.

A few miles further on he finds a block signal displaying caution and neglects to take the necessary action to bring the train down to medium speed soon enough. As a result an automatic application is received between the caution signal and the *B* point, bringing the train below the medium speed. He releases the brakes and later makes a manual application before reaching the braking point but neglects to acknowledge this point as he passes it and as a result the brakes are applied and held for about 40 sec. before they can be released, even though the train has decelerated below the new speed limit. This unnecessary stop has placed him slightly behind the regular running schedule and for the next few miles he has to make up time. Since the track ahead is clear as indicated by the wayside signals and speed limit indicator, he continues at speeds approximating the maximum.

While out of sight of the next wayside signal the indicator suddenly changes from *H* to *L* and he receives an automatic service application. A curve prevents him from seeing the track for any great distance, consequently if he so desires he may augment the automatic application by a further reduction manually. After being stopped he proceeds cautiously around the curve and finds a broken rail between his train and the next stop signal. If it is safe for the train to pass over at low speed he can proceed. As soon as the engine passes the break the indication changes back from slow to high, indicating that the broken rail was the sole cause of the restrictive indication previously imposed on the train.

Track reversal on any track between cross-overs at interlockings can be accomplished by the co-operation of the two adjacent operators in manipulating traffic direction levers in their respective machines, which can only be done when the track to be reversed is unoccupied between the two stations.

The train whose movements have been described continues to the end of the division where the engine is detached and proceeds to the roundhouse. As it leaves the main track the engineman operates the cut-out switch and the control apparatus is cut out until the engine enters the main line on its next run when it is automatically cut in as previously described.



Chicago Great Western Motor Car Being Turned at Terminal on a Special Turntable Designed by The Whiting Corporation



# Central America's Largest Road American-Owned\*

International Railways, with 600 Miles of Line, Largest Foreign Road Owned in U. S.

By F. J. Lisman

## PART II

THE PRINCIPAL SHOPS of the Salvador division are at Cotuco, although when the Salvador and Guatemala lines are connected it will be necessary to erect shops at Salvador City. Facilities at the various divisional points are quite fair. It is, of course, of the utmost importance that a company in a foreign country should have plenty of supplies on hand and be able to do most all of its own work



A Typical Banana Plantation

promptly, because it takes weeks, if not months, to get missing parts from the United States.

The company has recently installed telephone lines on its Guatemala lines. The Salvador lines from the beginning were equipped with and operated by telephone.

### Atlantic Ports

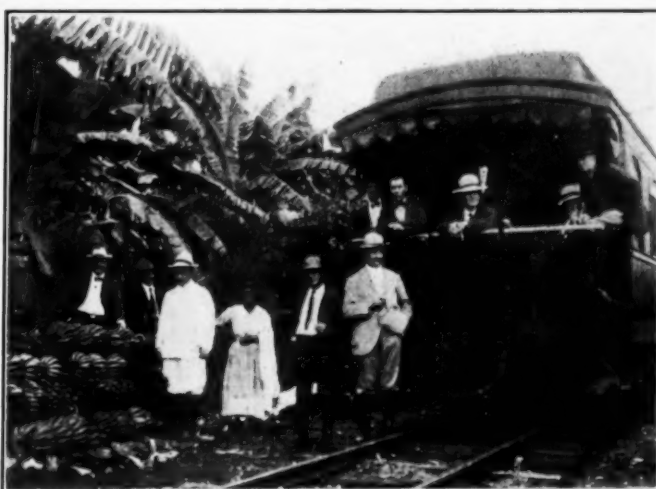
The Atlantic side of Central America, or rather the side facing on the Caribbean sea, has quite a number of fair—and some good—ports. Port Barrios, the eastern, or rather the northern, terminus of the International Railways of Central America, is naturally a good port, with deep water right up to the dock.

At Port Barrios the company received a grant from the government of one mile of water front on each side of its dock. This dock is built on creosoted, concrete protected piles and extends 1,200 ft. into the bay. Frequently four steamers load at this dock at once. The dock is especially equipped with the complicated machinery for the economical and delicate handling of bananas; it also has the necessary derricks to take care of all other present requirements. It can be extended at a comparatively small cost further into the bay.

### Pacific Ports

The port situation on the Pacific side of Guatemala was referred to in Part I of this article. The republic of El Salvador has two piers running out into the Pacific ocean

which are in every way like those of Guatemala. One of these piers, which is now in rather poor physical condition, is at La Libertad, 28 miles from the capital, and connected with the city by an excellent motor highway which has to overcome an elevation of about 3,200 ft. in that distance. The other pier is located at Acayutla, about 60 miles from the capital, and is the terminus of the English railroad hereafter mentioned. Salvador, which is located entirely on the Pacific side of Central America, is fortunate in having one real natural port on Fonseca bay. This is a large and protected bay, many miles in circumference, on which the states of Honduras and Nicaragua also front. The United States government under its treaty with Nicaragua has the right to build a large naval station on this bay. The Navy department has the plans all drawn and considers it essential that this base be built promptly for the purpose of forming an adequate naval and air defense for the Panama canal, from which it is distant about 550 miles by air line. Fonseca bay is the only natural port between Panama and Salina Cruz, Mexico. Salina Cruz is about 500 miles to the north and is the western terminus of the Tehuantepec Railway, now largely abandoned because of the transcontinental



A Passenger Train in the Banana Belt

business of which this line formerly subsisted now passes through the Panama canal.

On the Salvador side of Fonseca bay is located the town of Port Union, the oldest port on the Pacific side of the American continent. In colonial days many sailing ships from Spain coming around Cape Horn put in there. The International Railways, however, could not use this port because it had but 12 ft. of water. That company extended its line about one and one-half miles further on to a site now called Cotuco, where the custom house, shops and the company hotel are located and where it built a wharf into deep water. The dock, which represents an expenditure of about \$250,000, extends about 600 ft. into the bay. It carries two railway tracks and a large warehouse; two ships

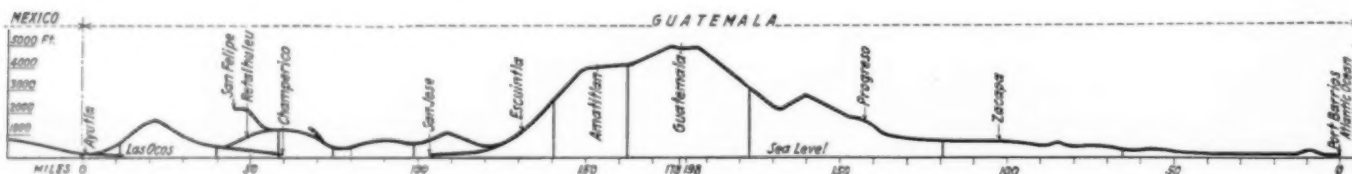
\*Part I of this article appeared in the *Railway Age* of August 30, page 377.

may be accommodated on each side. Additional docking facilities can be created at that port with but little expense. It has been the experience the world over that after a natural port is developed, the poorer or artificial ports gradually lose their business. The same is bound to happen in Salvador. Probably in ten or fifteen years the railroad's port at Cotuco will handle substantially all the traffic.

### Investment

The total book value of the lines of the International Railways, which is probably approximately the cash cost of replacement, is about \$58,000,000. This is represented to the extent of about \$11,000,000 by bonds; \$4,500,000 by

their work and a reasonable proportion of them can carry responsibility. The company employs very few foreigners. In Salvador there are only five foreigners connected with the whole property and these are heads of the departments. In Guatemala there are a few more, especially in the shops. All the station agents are natives and so are 95 per cent of the enginemen, conductors, etc. The daily wages for from nine to ten hours' work for track labor run from 35 to 50 cents per day, while in the lowlands near Barrios where labor has to be brought down from the plateau, wages run up to \$1.50. Station agents get from \$40 to \$55 per month; conductors and engineers from \$150 to \$175. The company employs train auditors at \$100 per month, because formerly there



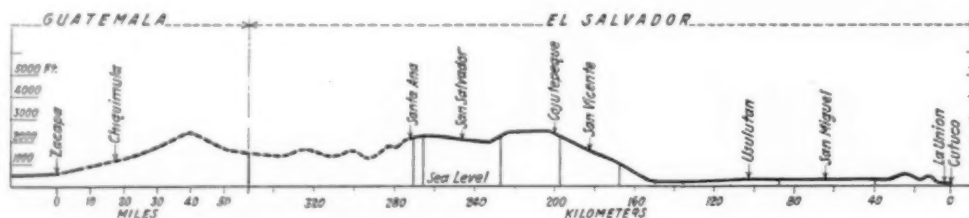
Profile of the Line in Guatemala

debentures; \$10,000,000 preferred and \$30,000,000 of common stock. This amount probably exceeds the investment of the United Fruit Company in Central America and is otherwise by far the largest amount of money represented by any interest in any of the five Central American countries.

The ownership of this line by American interests is of great importance to the United States for several reasons: The naval base at Fonseca bay above referred to would require in times of trouble the most rapid possible communica-

tion was the usual trouble about "knocking down" on part of the conductors and, as it takes a long while to train the natives to be conductors, it was deemed preferable not to lead them into temptation. It seems to be quite easy to make good workers for the shops out of the native carpenters, but it is very difficult for these countries to get good boiler makers and other mechanics, because the natives have neither the training nor the physical strength for that kind of work.

There are absolutely no negroes in Salvador and but very



Profile of the Line in El Salvador, Showing Also the Proposed Connection Between the Guatemala and the El Salvador Lines

Near the seaport there is a district that was built many years ago by the Salvador government. Here there is a 3.3 per cent uncompensated grade, which owing to the nature of the country could easily have been avoided and would have been but for the fact that it was desired to have the road pass the front yard of an important politician of that day.

tion with the United States. The distance from this base across country to the Atlantic side, upon completion of the gap, previously mentioned will be only 400 miles. In time of war it would be absolutely essential to the United States government to maintain this base of communication for a Pacific fleet. The distance from Port Barrios to New Orleans is about 975 miles, of which nearly 75 miles represents the distance from the mouth of the Mississippi to the city.

It is up to the management of the railway company to stimulate the development of the countries, which means that this development will be directed by United States citizens and financed by United States capital, with American materials. In other words, this ownership will stimulate business for the United States.

### Labor Problem

On the whole, the company has a smaller labor problem than the roads in the United States and in most other sections. The Indian and the "Ladino," as the people of mixed blood are called, while at present ignorant and superstitious, are capable of being taught, as they are naturally not unintelligent. When taught, they take an interest in

few in Guatemala and these only in and adjacent to Port Barrios, where they were brought in in former years by the United Fruit Company.

### Prospects for Increasing Traffic

The company's traffic is heavy for a road in the tropics, though it seems small and the rates very high compared with the United States. One must remember that the commodities which the road carries are raised only in the tropics, where the cost of railway construction is always high and the traffic density always light, and consequently rates on this type of commodities must necessarily be high in order to pay the interest on the money invested in transportation. The price to the consumer of these commodities naturally includes the cost of bringing them to market. The planters are doing quite well and can well afford to pay the rates. As a matter of fact, on the bulk of the line the maximum freight rate is fixed at about 20 cents gold per ton-mile for the life of the 99-year charter and the company's rates are about one-half of the maximum. Of course, as the traffic increases, the freight rates can and will be reduced.

The company's plant is used today to the extent of probably 20 per cent of its capacity and the growth of its business



will, therefore, require very little additional capital expenditure for many years to come. It will only be necessary to purchase additional equipment and to extend the docks. The present shops in Guatemala will take care of 50 per cent more business without acquisition of further machinery.

#### Slow Development Expected for Guatemala

The development in Guatemala for some years is likely to be very slow until that country establishes itself on a sound currency basis. At present its peso, supposed to be worth 50 cents in United States money, is worth a little less than 2 cents—that is, 60 pesos to the dollar—and has been going lower with each successive year. The banking system of the country is entirely undeveloped. No mortgages are obtain-



Some of the F. C. I. de C. A.'s Freight

able and commercial credit can only be obtained in gold and at interest rates of from 12 per cent upwards. The banks have practically no deposits and do not function in serving properly either the agricultural or commercial interests. A new banking system is now being discussed. Its creation would easily double the business of the country.

Guatemala has tremendous natural resources, not only in soil but also in minerals, and great possibilities in the raising of cattle and hogs on the plateau, of sheep in the high altitudes and in the Pacific lowlands.

As stated, the Indians are teachable and dependable, and whenever they obtain the benefit of an intelligent, benevolent government, instead of being the subject of exploitation, the country will become capable of a large production of many different things. This will be of great benefit to the United

States, with which most of the trade is bound to be, although before the war Guatemala was almost a German colony; 3,000 natives of Germany practically dominated the trade and agriculture of the country. During the war the German companies were sequestered and have now largely been converted into American companies. The Electric Light & Power Company of Guatemala City, for instance, has passed from German control to that of the General Electric Company. The property of the Deutsche Plantagen Gesellschaft of Germany, which owned some 11 coffee and sugar plantations in Guatemala, has gone into the hands of a New Jersey corporation. If Germany had won the war, she would unquestionably have annexed Guatemala.

#### Conditions Better in Salvador

In Salvador the situation is rather different and better. The country is on a gold basis. Its money, the colon, equal to 50 cents of United States money, is at par. Last year Salvador pledged its custom receipts under an American loan. Under the terms of this loan the agent for the American bond-

holders collects 70 per cent of the customs receipts. Since this change in collectorship, the custom revenues show an average increase of about 33 per cent, without a corresponding increase in tonnage. The Salvador government under this arrangement has received a great increase in revenue which it is willing to expend for better highways and schools. Furthermore, the railway in Salvador from the port to the city has been finished only two years and it takes time for these countries to adjust themselves to new conditions. There is no question but that the new transportation facilities in Salvador mean complete transformation of the country and a forthcoming rapid development.

The International Railways over the last five years reports the following:

	Gross	Net	Surplus after deducting operating expenses, taxes and all fixed charges
1919 .....	\$2,998,372	\$965,158	\$342,846
1920 .....	3,798,007	1,402,191	779,461
1921 .....	3,818,611	1,286,120	602,801
1922 .....	4,036,801	1,394,528	650,000
1923 .....	4,271,923	1,742,632	1,059,978
1924—The first six months show an increase in gross income of 21.5 per cent as compared with the corresponding months of 1923.			

There is every reason to believe that with the slow growth of Guatemala and the more rapid growth of Salvador, this company henceforth ought to show average annual increases of \$400,000 gross and \$200,000 in net.

The connecting link, now in course of construction between the city of Salvador and Zacapa, 100 miles from Port Barrios, will penetrate a rich mining country and the center of



A Typical Bridge

the best coffee raising district of Salvador. This district is 200 miles from an Atlantic port, or about the same distance which it is now from its best Pacific port. The construction of this line will mean much to Salvador and to the International Railways, because the products of that country which heretofore have had to be shipped to Pacific ports and around to Panama canal to reach their market, will have an outlet to the Atlantic side and thereby save nearly 1,000 miles of transportation. This coffee will not have to be hauled over any high summit, because the maximum elevation of the line between the coffee district and Port Barrios is 2,500 ft., which is about the same as the territory which is producing the coffee.

#### Other Railroads

In Guatemala there is another 30-mile railroad known as the Ferrocarril de Verapaz, built by Germans, now nominally controlled by an American company, the stock of which is owned by men of German birth. The road, which is based

on the port of Livingston, about 25 miles north of Barrios, connects through its own steamship company via 130 miles of river and lake navigation with this port. Its principal business consists of hauling coffee from the district of Coban located in the province of Verapaz. It is laid with 30-lb. steel on steel ties brought from Germany. Steel ties are necessary in that section, which has a rain fall of approximately 200 inches annually. Its business is inconsequential and hardly likely to grow much.

In Salvador there is an English company called the Salvador Railway, Ltd., which owns a railway, extending from the city of San Salvador to the port, or rather the roadstead, of Acajutla, with a branch to Santa Ana, the second largest town of the Republic. The line has  $4\frac{1}{2}$  per cent grades. Its material was imported altogether from England and it has English management and while its roadbed is quite fair, its equipment, other than its passenger cars, is not in good condition.

It is rather interesting to note that the only service between the two principal cities of Salvador furnished by this railroad, consists of a daily mixed train, which makes the 48 miles in about 4 hours on a schedule by which the passengers arrive in the capital at 11.20 A.M. The return train leaves Salvador at 1 o'clock, arriving in Santa Ana at 5.40. It is customary in the city of Salvador to close all business houses, stores, etc., from 12 to 2 o'clock.

This schedule is very good from the point of view that it requires but one crew to do the work, but it does not tend to stimulate good will towards the railroad. The International Railways have a double daily service in Guatemala on the Pacific division in and out of the capital and the same in Salvador enabling the people to come to the capital from a reasonable distance and return the same day.

## Collision on New York Central at Savannah, N. Y.

**I**N A COLLISION of westbound passenger trains of the New York Central two miles east of Savannah, N. Y. (which is about 32 miles west of Syracuse), on the morning of August 30, about 1:30 o'clock, during a dense fog, five

The leading train, No. 19, the Lake Shore Limited, had been stopped because of a ruptured air hose, and while standing was run into at the rear by No. 47, The Detroider, the engine of which pushed the rear truck of the rear car in No. 19 forward about 15 ft., causing serious damage to the rear end of the car, which was occupied by a party of boys, none of whom, however, was injured. The tender of the engine of No. 47 and the forward end of the buffet car next it had the only wheels derailed. Both trains were mostly sleeping cars, all steel.

No. 47 had passed a caution signal 6,300 ft. east and a stop signal 221 ft. east of the rear end of No. 19. The signals were working perfectly, and it is said that the engineman acknowledged the hand signals given by the flagman of No. 19.

Engineman Gibbons had been off duty 35 hours and 20 minutes prior to taking train No. 32 eastbound from Buffalo to Syracuse. On the eastbound trip he was on duty from 4:40 p.m. to 8:35 p.m. Westbound he reported for duty at 12:10 a.m., after having had 3 hours and 35 minutes for rest. The collision occurred 1 hour and 20 minutes after he went on duty. Buffalo was his home terminal. Engineman Gibbons entered the service of the New York Central as fireman in 1891 and has been a passenger engineman since 1913.

**COST OF TRANSPORTATION.**—The author of a recent article in *The Engineer* (London) presented an interesting comparison of the average speeds and costs per ton mile for various methods of transportation. The cheapest method of transportation is a horse-drawn barge which makes a speed of 1 mile an hour and costs only  $1/5$  cent per ton mile. A tramp steamer comes next, making  $7\frac{1}{2}$  miles an hour and costing 1 cent per ton mile. The author estimated the cost for an electric freight train at  $1\frac{1}{2}$  cents and for a steam freight train at 2 cents. While this may hold good in England, for freight service in this country for many years the average receipts per ton mile were less than 1 cent. Other interesting figures for speed and cost by various means of transportation are as follows: Ford truck, 20 miles an hour, 6 cents per ton mile; rigid airship, 80 miles an hour, 8 cents per ton mile; steam passenger train, 40 miles an hour, 12 cents per ton mile; Ford touring car, 18 miles an hour, 16 cents per ton mile; aeroplane, 100 miles an hour, 18 cents per ton mile;



Wreck of New York Central Trains No. 47 and No. 19 in Collision at Savannah, New York, on August 30

The Left-Hand Picture Shows the Leading Car of Train No. 47

passengers and four trainmen were injured; the injured including engineman Walter J. Gibbons of train No. 47, broken leg, and Charles D. Gleason, fireman, scalded.

coolie labor in British East Africa, 2 miles an hour, 44 cents per ton mile; horse carrying load, 5 miles an hour, 82 cents per ton mile; wheelbarrow, 5 miles an hour, \$1.64 per ton mile.



# Official Announcement Made of Merger Terms

## Van Sweringen Statement Embodies No Material Difference from Previous Unofficial Reports of Plan

**O.** P. AND M. W. VAN SWERINGEN have issued to the stockholders of the five roads involved in their proposed merger an official announcement, giving in detail the terms of their plan and asking the participation of these stockholders therein. With the announcement is included the text of the agreement covering the deposit of stock.

The official announcement embodies no essential change from the unofficial report which was issued August 7 (see *Railway Age* of August 16, page 310) and it was discussed in an article in last week's issue of the *Railway Age* entitled "Directors Approve Van Sweringen Merger Offer" issue of August 30, page 381.

The Van Sweringen statement is addressed to the stockholders of the New York, Chicago & St. Louis, the Chesapeake & Ohio, the Hocking Valley, the Erie and the Pere Marquette, and to holders of securities convertible into shares of any of these companies. It starts off by saying that "We believe that unified control and operation of your properties will be beneficial to the several properties and the public that they serve."

The plan as outlined says it is proposed to organize a new corporation with authorized capital stock divided into two issues. One of these is to be a 6 per cent cumulative preferred stock, series A, of \$100 par value, preferred both as to assets or dividends, without voting power except as required by law or provided in the charter. The other issue will be voting common stock of \$100 par value or without par value. If it is without par value the same number of shares will be issued pursuant to the plan as though such shares had a par value of \$100 each. The plan says that it is expected to initiate dividends on the common stock at a rate of \$6 per share per annum. It is proposed that the new company shall acquire control of the properties of the five companies by 999-year lease and by acquisition of a majority of outstanding stock.

### Terms for Exchange of Stock

The new company which is to be formed will exchange its stock with the stock of the present companies on the following basis:

#### Chesapeake & Ohio

			New Company	
			Preferred	Common
For 100 shares	First preferred stock.....	115 shares	..	
" 100 "	Second preferred stock.....	115 "	..	
" 100 "	6½ per cent cumulative preferred stock .....	115 "	..	
" 100 "	Common stock .....	55 "		55 shares

The New York, Chicago & St. Louis will exchange its holdings of stock of the Chesapeake & Ohio, consisting of 155,000 shares of common, for the stock of the new company upon the same basis as that provided for other stockholders and will retain the stock of the new company issued in exchange therefor.

#### Hocking Valley

For 100 shares of its stock 50 shares each of Preferred Stock and Common Stock of the New Company.

It is planned that no shares of the new company will be issued for stock of the Hocking Valley owned by the Chesapeake & Ohio. Such holdings of Hocking Valley stock by the Chesapeake & Ohio amount to 90 per cent of the outstanding Hocking Valley stock.

#### Erie

			New Company	
			Preferred	Common
For 100 shares	First preferred stock.....	50 shares	..	
" 100 "	Second preferred stock....	50 "	..	
" 100 "	Common stock .....			40 shares

#### Pere Marquette

			New Company	
			Preferred	Common
For 100 shares	Prior preference stock.....	100 shares	..	
" 100 "	Preferred stock .....	90 "	..	
" 100 "	Common stock .....			85 shares

New York, Chicago & St. Louis will exchange its holdings for stock in the Pere Marquette, noted in the plan to be 120,000 shares of common, for the stock of the new company upon the same basis as that provided for other stockholders and will retain the stock of the new company issued in exchange therefor.

Holders of bonds of the Chesapeake & Ohio and of the Erie, convertible into shares of such companies may, during the period of their conversion right, exchange their bonds in the same number and kind of shares of the new company to which they would be entitled in accordance with the foregoing basis of exchange if they had first converted their bonds into shares of such present companies.

Stockholders of the New York, Chicago & St. Louis will not receive new company shares but the New York, Chicago & St. Louis will receive preferred and common shares of the new company equal to the number of preferred and common shares of the New York, Chicago & St. Louis outstanding, in addition to the shares to be received by it for stock of the Chesapeake & Ohio and Pere Marquette owned by it. Outstanding stock includes stock to be issued to and retained by stockholders of constituent companies upon exchanges under the agreement and articles of consolidation of the New York, Chicago & St. Louis, dated December 28, 1922, but does not include stock of that company held in its treasury.

### Approval of Public Authorities

This plan is subject to the necessary approval of the Interstate Commerce Commission. All legal matters are being passed upon by W. A. Colston, vice-president and general counsel of the New York, Chicago & St. Louis, and John H. Agate, assistant general counsel of the New York, Chicago & St. Louis, and by White & Case of New York, who have participated in the preparation of the plan.

### Mileage and Territory Served

The Van Sweringen announcement says that when the new plan becomes effective the new company will operate directly or through subsidiaries, 9,145 miles of road including leased and controlled lines. It is not stated how this figure is arrived at. It apparently does not include the mileage of the New York, Susquehanna & Western which is a subsidiary of the Erie, nor does it include certain so-called restricted trackage rights held by the Erie.

The statement continues:

"Its main lines will extend from the ports of New York and Newport News to connections with the principal western, northwestern and southwestern roads at the gateways, Chicago, Peoria and St. Louis; also to the gateways of Louisville, Cincinnati and Indianapolis. Its lines will reach such important cities as Rochester, Buffalo, Erie, Cleveland, Sandusky, Toledo, Columbus and Ft. Wayne, and serve

industrial Michigan through the Toledo and Detroit gateways. It will serve the great Mahoning Valley steel district, particularly the mills and plants at Sharon and Youngstown; also the rubber industry at Akron and vicinity. It

will serve the extensive bituminous and anthracite coal fields of northern Pennsylvania and the bituminous fields of Ohio, West Virginia and Kentucky and afford outlets from them to tide-water, to the great lakes and to the north and west. It

## STATEMENT A

Giving details of the plan for issue, exchange and disposition of Capital stock of the New Company and certain provisions of the several leases proposed

Stock of New York, Chicago & St. Louis, which is not to be acquired by the new company

	Pfd. Dollars	Com. Dollars	Stock to be issued by New Company			
			Ratios		Amounts	
			Pfd.	Com.	Pfd. Dollars	Com. Dollars
New York, Chicago & St. L.						
Pfd. stock outstanding .....	25,865,666		1.00		25,865,666	
Pfd. stock in treasury .....	6,854,334					
Com. stock outstanding .....		30,406,464		1.00		30,406,464
Com. stock in treasury .....		15,841,436				
Stock of Lessor Companies which is to be acquired by New Company in exchange for its Capital Stock						
Chesapeake & Ohio						
1st pfd. ....	3,000					
2nd pfd. ....	200					
6½ per cent cum. pfd. ....	12,558,500					
	12,561,700		1.15		14,445,955	
Com. stock outstanding .....		65,414,725				
Com. stock in treasury .....		11,000				
		65,425,725	.55	.55	35,984,148.75	35,984,148.75
Hocking Valley Common stock owned by Chesapeake & Ohio.		8,837,900				
Com. stock outstanding owned by others .....		2,161,600				
Com. stock in treasury .....		500				
		2,162,100	.50	.50	1,081,050	1,081,050
Erie						
1st pfd. stock ..	47,904,400					
2nd pfd. stock ..	16,000,000					
	63,904,400		.50		31,952,200	
Com. stock .....		112,481,900		.40		44,992,760
Pere Marquette Prior preference stock .....	11,200,000		1.00		11,200,000	
Pfd. stock .....	12,429,000		.90		11,186,100	
Com. stock .....		45,046,000		.85		38,289,100
Total stock to be issued under leases or in exchange for stock of lessor companies .....					131,715,119.75	150,753,522.75
STOCK TO BE ISSUED FOR CASH OR RESERVED FOR CONVERTIBLE BONDS						
To be issued for cash upon organization .....					50,000.00	50,000.00
To be reserved for the Chesapeake & Ohio convertible gold 5's convertible into C. & O. com. stock at 90 to April 1, 1926, and at par thereafter to April 1, 1936 (par value outstanding, \$38,073,500) .....			.55	.55	23,267,138.89	23,267,138.89
				.90		
To be reserved for Erie convertible 50-year gold 4's Series D convertible into Erie common stock at 50 to Oct. 1, 1927 (par value outstanding, \$19,628,000) .....				.40		15,702,400.00
				.50		
Total stock of new company to be issued or reserved for the purposes of the plan .....					155,032,258.64	189,773,061.64

## PROVISIONS OF THE SEVERAL LEASES

Each lease shall be agreed upon by the companies, parties thereto. Among other appropriate provisions and considerations, each lease shall provide in substance that the new company shall:

(a) Pay: (1) all taxes upon the leased properties or the earnings and income therefrom; (2) all interest charges; (3) all expense and liability from operation and maintenance of the leased properties; (4) all expenses of maintaining the lessor's corporate structure and such additional considerations, if any, as shall be provided for in the lease.

(b) Pay for account of the lessor, or provide for by refunding or otherwise, all obligations and liabilities of the lessor, the new company retaining the right to cause the lessor to execute mortgages or pledges and to create and issue bonds of, or otherwise to obligate, the lessor as the new company shall deem expedient for such purpose and for financing capital expenditures to or upon the leased properties.

(c) Maintain the leased properties during the lease, and at its termination, return the leased railroads; also return all other assets, including equipment, to a net value equivalent to that received by the new company at the inception of the lease, or, as to any of such property which cannot be returned in kind, pay such value in cash, allowance being made for payments by the new company of obligations or liabilities of the lessor and for capital expenditures to or upon the leased properties.

(d) Operate and develop, or cause to be operated and developed, to its best ability, the leased properties.

The new company will receive the entire gross income from all leased properties subject to the provisions of the leases.

Each lease shall provide for the consolidation, merger, conveyance or unification in other manner of the properties of the lessor and lessee companies into one corporation for the ownership, management and operation of such properties, when authorized by the Interstate Commerce Commission or other proper governmental agency, whereupon the lease may be terminated. In the case of The New York, Chicago & St. Louis, the lease shall provide in substance that, if for any reason whatsoever the lease should be terminated, then the lessor on request of the lessee, or its successor, either shall forthwith, for a nominal consideration, convey the fee of its leased properties to the lessee, subject to the approval of the conveyance at such time by the Interstate Commerce Commission or other proper governmental agency, or shall, at the option of the lessor, return the stock of the new company given in consideration of the lease, or the equivalent, at the time of the termination of the lease, of said stock, as provided in the lease. If for any reason whatsoever such conveyance should not be made at the time of the termination of the lease, the lessor shall in any event return said stock, or its said equivalent; but nothing herein shall be construed to limit or prevent the free use or disposition of said stock by the lessor.

Each lease, except that from the New York, Chicago & St. Louis, will obligate the new company to issue its stock, in exchange for stock of the lessor company, upon the bases set forth in the foregoing proposal, against surrender of such stock at any time within one year from the date of delivery of the lease.

If the lease of any of the railroads shall be made indirectly by lease to any company other than the new company, the new company shall concurrently with the delivery of such lease assume and guarantee all obligations of the lessee thereunder.

## STATEMENT B

Condensed balance sheet as of June 30, 1924, of New Company, after giving effect to the proposed acquisition by lease of the properties of the five Lessor Companies, subject to their liabilities:

Assets	
Investment in road and equipment .....	\$1,081,593,224
Sinking funds .....	18,364,471
Deposits in lieu of mortgaged property sold .....	1,558,587
Miscellaneous physical property .....	1,499,792
Investment in affiliated companies .....	168,810,431
Other investments .....	7,841,290
Current assets .....	107,630,083
Deferred assets .....	929,468
Unadjusted debits .....	18,523,847
Treasury stock .....	12,600
	\$1,406,763,793
Liabilities	
Capital stock to be issued:	
Preferred .....	\$131,715,120
Common .....	150,753,523
	\$282,468,643
Equipment debt .....	84,198,176
Funded debt .....	\$747,934,430
Less: Held in treasury or pledged .....	161,345,900
	586,588,530
Current liabilities .....	80,746,607
Deferred liabilities .....	2,082,449
Unadjusted credits:	
Accrued depreciation—equipment .....	\$60,086,709
Other .....	20,434,390
	80,521,099
Sinking fund reserves .....	16,374,657
Appropriated surplus .....	42,780,241
Corporate surplus .....	231,003,391
	\$1,406,763,793

(NOTE) Capital stock of the Hocking Valley of a par value of \$8,837,900 owned by the Chesapeake & Ohio and carried on its books at \$10,520,180 has been eliminated in the preparation of this balance sheet. Capital stock of the Chesapeake & Ohio of a par value of \$15,500,000 owned by the New York, Chicago & St. Louis and carried on its books at \$12,072,028 has been eliminated from the consolidated assets but effect of new capital stock being issued in exchange therefor has been given in the same proportion as other shares of the Chesapeake & Ohio, similar effect being given in respect of the \$12,000,000 par value of common stock of the Pere Marquette, reported as purchased for \$5,830,621, by the New York, Chicago and St. Louis Railroad Company, and not entered on its records at June 30, 1924.

The above statement is based upon the issue of common stock of par value of \$100 per share. If common stock without par value be issued, the sum of the amounts shown for common stock and surplus will represent the equity for the common stock.



will afford to the industrial territory of the great lakes continuous transportation over originating rails to and from the points named."

### Committee

The committee to carry out the plan consists of J. J. Berner, president of the New York, Chicago & St. Louis;

#### STATEMENT C COMBINED INCOME ACCOUNT

Of the Five Lessor Companies for the six months' period ended June 30, 1924  
Railway operating revenues:

Freight .....	\$138,498,335	
Passenger .....	15,799,117	
Other .....	10,678,378	
Total railway operating revenues.....	\$164,975,830	
Total railway operating expenses.....	129,916,626	
Net Revenue from railway operations.....	\$35,059,204	
Taxes, equipment and joint facility rents:		
Railway tax accruals.....	\$7,493,418	
Uncollectible railway revenues.....	75,929	
Equipment and joint facility rents (net).....	1,075,280	
Total taxes, equipment and joint facility rents.....	8,644,627	
Net railway operating income.....	\$26,414,577	
Non-operating income .....	7,142,955	
Gross income .....	\$33,557,532	
Deductions from gross income:		
Rents for leased roads.....	\$1,621,308	
Other (except interest on funded debt).....	1,445,381	
Total deductions from gross income.....	3,066,689	
Balance for interest on funded debt.....	\$30,490,843	
Interest on funded debt.....	14,878,635	
Net income .....	\$15,612,208	
Ratio of net earnings to preferred stock dividend requirement .....	3.95	times
Available for common shares after providing for preferred dividends at 6 per cent per annum.....	\$15.47	per share

(NOTE)—The six months' period has been used as an annual basis in computing the earnings as applied to shares of stock.  
The following dividends from Inter-Company securities have been eliminated from the above Combined Income Account:

Hocking Valley dividends received by C. & O.....	\$176,758
C. & O. dividend received by N. Y. C. & St. L.....	285,200

W. J. Harahan, president of the Chesapeake & Ohio and the Hocking Valley; W. L. Ross, president of Detroit & Toledo Shore Line; F. D. Underwood, president of the Erie, and E. N. Brown, chairman of the Board of the Pere Marquette; O. P. Van Sweringen and M. J. Van Sweringen.

Deposit of stock is to be made with J. P. Morgan & Co., New York City; the Continental & Commercial Trust & Savings Bank, Chicago; the Union Trust Company, Cleveland, Ohio, and the Old Colony Trust Company, Boston, Mass., which will receive deposits of stock and issue therefor transferable certificates of deposit. Application will be made to list the certificates of deposit on the New York Stock Exchange. All dividend collections on deposited stock will be paid to the holders of certificates of deposit representing such stock.

Attached to the announcement are four statements. Statement A gives a tabulation of the plan for the exchange of stock. It shows that the stock to be issued by the new com-

pany under the plan will total \$131,715,120 preferred and \$150,753,523 common, exclusive of stock to be issued for cash or reserved for convertible bonds. Included with this statement is a tabulation of the provisions of the several leases.

Statement B is a condensed balance sheet as of June 30, 1924, which shows for the combined company a total investment in railroad and equipment of \$1,081,593,224, capital stock totaling \$282,468,642, equipment obligations amounting to \$84,198,176 and other funded debt totaling \$586,588,530. Corporate surplus shown in the statement amounts to \$231,003,391.

Statements C and D are combined income accounts of the five lessor companies. The former covers the six months' period ended June 30, 1924. It shows that preferred divi-

#### STATEMENT D

##### COMBINED INCOME ACCOUNT

Of the Five Lessor Companies for the year ended December 31, 1923  
Railway operating revenues:

Freight .....	\$298,277,845	
Passenger .....	35,175,257	
Other .....	22,507,669	
Total railway operating revenues.....	\$355,960,771	
Total railway operating expenses.....	279,796,369	
Net revenue from railway operations.....	\$76,164,402	
Taxes, equipment and joint facility rents:		
Railway tax accruals.....	\$14,723,101	
Uncollectible railway revenues.....	160,743	
Equipment rents (net).....	2,891,376	
Joint facility rents (net).....	2,194,119	
Total taxes, equipment and joint facility rents.....	19,969,339	
Net railway operating income.....	\$56,195,063	
Non-operating income .....	8,638,600	
Gross income .....	\$64,833,663	
Deductions from gross income:		
Rents for leased roads.....	\$3,055,073	
Other (except interest on funded debt).....	2,695,334	
Total deductions from gross income.....	5,750,407	
Balance for interest on funded debt.....	\$59,083,256	
Interest on funded debt.....	29,919,637	
Net income .....	\$29,163,619	
Ratio of net earnings to preferred stock dividend requirement .....	3.69	times
Available for common shares after providing for preferred dividends at 6 per cent per annum.....	\$14.10	per share

The following dividends from Inter-Company securities have been eliminated from the above Combined Income Account:

Hocking Valley dividends received by C. & O.....	\$353,276
C. & O. dividends received by N. Y. C. & St. L.....	354,800

dends for this period would have been earned 3.95 times and that there would have been available, after preferred dividends, \$15.47 per share for (on an annual basis) the common.

Statement D, covering the period ended December 31, 1923, shows total operating revenues amounting to \$355,960,771, net railway operating income totaling \$56,195,063 and net income after charges of \$29,163,619. Preferred dividend requirements would have been covered 3.69 times and there would have been available for common shares after providing for the 6 per cent preferred dividends \$14.10 per share.



Workers in the Women's Aid Workroom, Pennsylvania Station, New York

These and other women meet on Wednesday of each week to sew for needy families of employees of the New Jersey division of the Pennsylvania

# Might Violate Commodities Clause it is Held

## I. C. C. Examiner Recommends Denial of Certificate for Coal River & Eastern, a Brotherhood Property

**T**HE INTERSTATE COMMERCE COMMISSION has made public a proposed report by C. E. Boles, attorney examiner, recommending denial of an application of the Coal River & Eastern Railway Company for a certificate of public convenience and necessity for the operation by it in interstate commerce of the Laurel Fork railroad, extending from Seth, W. Va., to Prenter, approximately 11 miles, on the ground that such operation may prove to be a violation of the commodities clause, and dismissal of the application as to the Lick Creek railroad, from Ashford to Warren S., W. Va., approximately 2 miles, for want of jurisdiction because the line is only a spur track and does not require a certificate.

The applicant railway company is an enterprise of the Brotherhood of Locomotive Engineers, organized in the interest of the New Rivers Collieries Company, the stock of which is held for the most part by individual members of the Brotherhood. The railway company has also filed an application for authority to issue \$500,000 of bonds and \$1,000,000 of common stock, the bonds and \$250,000 of the stock to be issued to the Collieries company in payment for the railroad property as it now stands and the remainder of the stock to be offered to individual investors through the Brotherhood Investment Company, 51 per cent of the stock of which is owned by the Brotherhood of Locomotive Engineers. The proceeds of the stock to be sold are proposed to be expended in the development of the property. The examiner's report says that while it does not so appear of record, the inference to be drawn therefrom is that the applicant's stock to be sold to individuals through the investment company is to be sold to members of the Brotherhood, although not to the same individuals or to individuals in the same proportion as stock in the Collieries company.

Both of the railroads which the applicant wishes to operate connect with the Big Coal branch of the Chesapeake & Ohio, the Laurel Fork at Seth and the Lick Creek at Ashford, the two junction points being about 12 miles apart. After expressing the belief that sufficient showing has been made to warrant a conclusion that the Laurel Fork should be operated in interstate commerce the examiner says there remains to be considered whether this line should be operated by the applicant. "While it is stated that control of the applicant by the Collieries will be only temporary," he says, "there is no evidence as to when this control will terminate. Moreover the community of interest which will continue to exist between the applicant, the Collieries and the enterprises of the Brotherhood after the majority of the applicant's stock passes into the hands of individual members of the Brotherhood is such that the Brotherhood as an organization will be able to dominate the policies of both the applicant and the Collieries . . . Whether or not the applicant's promoters would succeed in escaping the provisions of the (commodities) clause by causing a majority of the applicant's stock to be sold to individual members of the Brotherhood may well be doubted, for the language of the clause is very broad and has been broadly interpreted by the United States Supreme Court. The public convenience and necessity would hardly seem to require the operation of a railroad, where such operation, it seems reasonable to believe, may prove to be a violation of the commodities clause."

### Financing

Regarding the proposed financing the report says:

WASHINGTON, D. C.  
The facts of record show that prior to April, 1924, there had actually been expended in the construction of the lines approximately \$506,000. Much of this expenditure apparently has been for renewals and replacements. The cost of reproduction new of the two lines as of October 4, 1923, is given as \$529,296. The estimates, with the exception of an item of approximately \$67,000 for track-laying and surfacing, appear to be reasonable. The testimony is that this should not exceed \$2,500 a mile, which would give about \$32,500 for the two lines. The explanation as to the estimate covering this item is not entirely satisfactory. Right of way is estimated to be worth at least \$750,000. This value is based on the assumption that the line occupies the only available route to lands which will produce an enormous tonnage of coal. The facts of record fail to establish such value. There is testimony to the fact that it would be possible to parallel both lines and that the Chesapeake & Ohio usually figures cost of land in the same general territory at \$4,000 per mile. On this basis the value of the right of way would be about \$52,000.

The equipment to be acquired consists of two locomotives, one of which can be used only for relief purposes, and two second-hand flat cars of a total estimated value of about \$25,000. Using the more conservative figures for track-laying and surfacing and for right of way, the total value of the property to be acquired would, on the basis of the estimates given, be approximately \$571,796.

The applicant has filed an application in Finance Docket 3471 for authority to issue \$500,000 of bonds and \$1,000,000 of common stock. The bonds and \$250,000 of the stock are to be issued to the Collieries in payment for the railroad as it now stands. The remainder of the stock is to be offered to individual investors through the Brotherhood Investment Company and the proceeds expended in the development of the property, \$100,000 immediately for rehabilitation and completion of track and grading and for depots and yards. It is estimated that during the first five years of operation the applicant's investment will be increased between \$500,000 and \$600,000 for equipment and the testimony is that it will take approximately the same amount to develop yards sufficient to care for the tonnage expected to be developed.

### Chesapeake & Ohio Opposed Application Grant

The Chesapeake & Ohio opposed the granting of the application on the ground that there is no public need for the operation of the line in interstate commerce and that the lines are spur tracks no different from hundreds of similar railroad facilities owned and maintained by mining companies operating mines located off its right of way in the coal districts which it serves. It took the position that if the certificate were issued the applicant would be in a position to demand that the C. & O. extend its Kanawha district coal rate to the mines owned by the Collieries company and to secure a division of this rate, and that this would have the effect of transferring from the Collieries company to the C. & O., not only the expense of moving cars to and from the mines but also the burden of the investment in the lines which it contended should be and is ordinarily borne by the mine owners with mines located off its right of way.

It is the custom of this road throughout the coal districts of West Virginia and Kentucky, the report says, to extend its transportation service for the district rate to mines located off its right of way through the use of railroad facilities owned by the mining companies and it is now willing to extend that practice to the Brotherhood mines provided the lines are put in condition for safe operation according to the requirements of its operating standards, but negotiations to this end failed because after inspection it was found that they did not meet the requirements and that it would cost about \$200,000 for the tracks of the Laurel Fork and a little additional expenditure for the Lick Creek to put them in condition for safe operation by the C. & O. The applicant on the other hand contended that the C. & O. proposal to



operate the lines under the usual spur track agreement is unfair in that it would throw a burden of investment in railroad facilities upon the Collieries company that has not been required of other coal mining companies owning mines off the C. & O. right of way and would be discriminatory as compared with its practice in other cases.

After reviewing the contentions the examiner says:

Two questions are presented for consideration, first, whether the lines are spur tracks and therefore not subject to the commission's jurisdiction under the provisions of paragraphs (18) to (21), inclusive, of section 1 of the act, and second, if the lines may properly be considered branches, whether the public convenience and necessity require that they be operated by the applicant in interstate commerce.

The Chesapeake & Ohio has built a number of branches to mines in the coal districts of West Virginia and Kentucky. The record shows an aggregate of 33 such branches and sub-branches on the Chesapeake & Ohio's main line, Coal River district main line, Logan division main line, Cabin Creek branch main line, and Big Sandy division main line. The longest of these, the Big Coal branch, with which the two lines under consideration connect, serves directly and by sub-branches and industrial spurs 26 mines. The total mileage of this branch and its three sub-branches is 43.3 miles. The shortest of the 33 branches and sub-branches is 0.8 mile in length and serves four mines. On the main line, branches and sub-branches of the Coal River district, Logan division, Cabin Creek branch, Paint Creek branch, and Big Sandy division there are 416 mines, 117 of which are on the Chesapeake & Ohio's right of way, 130 on industrial lines within one-half mile of the right of way, and 150 on industrial lines more than one-half mile from the right of way. The location of 19 of the mines is not shown. The Chesapeake & Ohio's district rates are extended not only to the mines on the branches but also to the mines located off its right of way. The spur tracks reaching these mines were constructed by the mining companies in accordance with the Chesapeake & Ohio's operating standards and are used by it in reaching the mines at its district rate. The longest of these spur tracks is 3.4 miles in length.

There is little evidence as to the nature and volume of traffic over the various branches and sub-branches. Specific information is given as to two of them and as to a third not identified as any of those mentioned above. The three branches just referred to are respectively 4.4, 7.5, and 10 miles in length. The characteristics of each as to traffic and population served are different in no material respect from the characteristics of the lines now operated by the Collieries. About the only difference is that the traffic over these three branches is relatively small.

### Rates

In addition to building branches to develop coal traffic the Chesapeake & Ohio has participated in the establishment of the district gates from points on independently operated railroads. The commission has compelled it to extend its district rates to the Sewell Valley, the Kanawha, Glen Jean & Eastern, the Kanawha Central, the Big Sandy & Kentucky River, and the Eastern Kentucky. The longest of these lines is 39 miles and the shortest 5 miles. There is no evidence as to the character and volume of traffic of any of these independently operated lines.

The Lick Creek would ordinarily be classed as a spur. It reaches only one coal mine. The settlement or village of Warren S., is not located at the terminus of the line, but begins one-half mile from Ashford and continues along the line up to the tippie. There will be no passenger service over the line, and so far as appears its only traffic will consist of outbound shipments of coal and inbound shipments of supplies for the mine. Paragraph (22) of section 1 of the act provides in part that the authority of the commission conferred by paragraphs (18) to (21), both inclusive, of that section, shall not extend to the construction or abandonment of spur tracks, located or to be located wholly within one state. A fortiori the commission's authority would not extend to a spur track operation.

While the bulk of the traffic of the Laurel Fork will be coal the record shows that there will be an appreciable amount of traffic other than coal. It will serve two or three settlements or villages which will have no other means of transportation. The applicant proposes to establish stations at two of these places. In addition to serving the two large mines of the Collieries it will serve an independent plant affording some traffic, and possibly some timber operations and independently operated mines. The line would hardly be classed as a spur and the facts of record sufficiently establish that there is need of transportation service along this line that can not well be afforded by a spur track operation. It is believed that sufficient showing has been made to warrant a conclusion that the line should be operated in interstate commerce.

Various provisions of the transportation act evidence an intent

to bring about economies in transportation. Such is the purpose of the major provisions of that part of the act amending section 5 of the interstate commerce act. The independent operation of numerous short lines is not conducive to economy in transportation. In the instant case the facts of record indicate that the method employed by the Chesapeake & Ohio in the operation of its branches is much more economical than that which the applicant proposes. Moreover the expense of maintaining the separate organization of an independent carrier is considerable and adds to the general burden of the shipping public. Wherever possible needed transportation facilities should be furnished by the trunk line carrier, especially where the organization proposing to operate in interstate commerce is controlled by or affiliated with an industry which will furnish the bulk of its traffic. In such case a certificate should be issued only after every reasonable effort has been exhausted to procure the required facilities or service from the trunk line carrier.

Upon the facts presented the commission should find that the present and future public convenience and necessity do not require and will not require the operation by the applicant in interstate commerce of the line of railroad from Seth to Prenter, Boone County, W. Va., described in the application. So much of the application as relates to the operation in interstate commerce of the line described in the application as extending from Ashford to Warren S., should be dismissed for want of jurisdiction.

## Freight Car Loading

WASHINGTON, D. C.

REVENUE FREIGHT CAR LOADING showed a sharp upward turn in the week ended August 23. The total was 982,248 cars, an increase of nearly 30,000 cars as compared with the week before, although 87,667 cars less than the total for the corresponding week of last year. Four districts, however, showed increases as compared with last year, the Pocahontas, Southern, Central Western and Southwestern, although grain and grain products was the only commodity classification to show an increase as compared with last year. Coal loading showed an increase of over 15,000 cars as compared with the week before to 159,814 cars but was 43,003 cars less than the loading for the corresponding week of last year. The loading of coke and ore was less than it was in 1922, although all other classes of commodities showed increases as compared with 1922. The summary as compiled by the Car Service Division of the American Railway Association follows:

REVENUE FREIGHT CAR LOADING WEEK ENDED AUGUST 23, 1924			
Districts	1924	1923	1922
Eastern .....	225,376	257,140	207,745
Allegheny .....	198,246	231,044	185,376
Pocahontas .....	46,292	43,864	29,604
Southern .....	139,816	136,173	113,649
Northwestern .....	141,955	175,273	152,592
Central Western .....	159,823	156,751	138,749
Southwestern .....	70,740	69,670	52,187
Total Western Districts .....	372,518	401,694	343,528
Commodities			
Grain and Grain Products .....	61,613	54,937	54,149
Livestock .....	54,237	35,865	31,722
Coal .....	159,814	202,817	110,682
Coke .....	7,229	13,514	8,383
Forest Products .....	69,138	77,958	59,855
Ore .....	48,313	77,945	65,395
Merchandise, l. c. l. ....	243,873	244,034	228,968
Miscellaneous .....	358,031	362,845	320,748
Total .....	982,248	1,069,915	879,902
August 16 .....	952,888	1,039,938	846,266
August 9 .....	942,198	973,750	842,690
August 2 .....	945,731	1,033,466	842,663
July 26 .....	925,859	1,041,415	848,855
Cumulative total January 1 to date .....	30,536,262	32,063,306	26,683,895

The freight car surplus is gradually being reduced with the increased loading. For the period August 7 to 14 the surplus was 278,476 cars, including 127,801 coal cars and 117,111 box cars. For the Canadian roads the surplus was 28,560, including 24,475 box cars. For the period August 15-22 the surplus for the United States was 258,271, including 107,125 box cars and 119,338 coal cars. The Canadian surplus for the same period was 28,675, including 24,750 box cars.

## Report on Buda Collision

THE INTERSTATE COMMERCE COMMISSION has issued a report, dated July 31, and signed by W. P. Borland, director of the Bureau of Safety, on the rear collision on the Chicago, Burlington & Quincy, at Buda, Ill., on June 30, causing the death of eight persons and the injury of 16. This collision in which train No. 8 ran into train No. 2, was reported in the *Railway Age* of July 12, page 61. Following are the conclusions of the government report:

"This accident was caused by the failure of Engineman Huber, of train No. 8, properly to obey signal indications, and by the failure of Flagman Allard, of train No. 2, properly to protect his train by flag.

"Engineman Huber apparently approached the home signal prepared to stop. This is a stop-and-proceed signal, but inasmuch as the calling on signal was cleared Engineman Huber was relieved of the duty of stopping and was allowed to proceed under control. According to his statement, no instructions were received from the operator; and he proceeded on the main track and should have kept under control, prepared to stop within his range of vision, until it arrived at the next block signal. Instead of giving that close attention to the track ahead which was required, particularly in view of the fact that his vision was materially obscured by the freight train on the passing track, Engineman Huber stood up in an endeavor to see over the tops of the freight cars in order to observe the indication of the next automatic signal.

Apparently it was while he was so engaged that he passed the flagman and fusee without seeing either, his first intimation of the train ahead being when he saw the rear end of train No. 2 about 80 ft. distant. While he was working only a drifting throttle, the evidence indicates that the speed of his train had increased, due to the descending grade, and it is clear that Engineman Huber did not take necessary action to keep his train under proper control. It does not appear that there was any misunderstanding on his part of what he was required to do in the circumstances, and had he properly performed his duties this accident would have been averted. Engineman Huber is 50 years of age; he was employed as a fireman in 1892 and was promoted to engineman in 1904, practically all of his 20 years' experience as an engineman having been in the territory in which this accident occurred. It also appeared that during the past 10 years he had been examined on the rules on five different occasions.

"Conductor Ogden had talked with Flagman Allard, of train No. 2, about their train being on the time of train No. 8, and when his train reached Buda Flagman Allard knew that train No. 8 was then due, yet he did not throw off a fusee before his train came to a stop, did not hurry about getting off, and apparently thought he should have been signaled to do so by the engineman. It further appears that after starting back to flag he walked at a moderate rate of speed and did not run even when he heard train No. 8 approaching, although he was fully aware that the view was very much obscured. While the evidence is clear that not more than four minutes elapsed between the time at which train No. 2 stopped and the time of the collision, it is also apparent that Flagman Allard made only a half-hearted effort to provide proper protection. Even assuming that the stop was a sudden and unexpected one and also assuming that he had no opportunity of throwing off a fusee, there is apparently no reason why Flagman Allard under the circumstances should not have been ready to get off the instant his train came to a stop, and he should have made every effort to get back as far as possible in the time at his disposal. Had he done so and had he made a reasonable effort to attract the attention of the engineman of train No. 8 instead of merely throwing his fusee on the ground and getting out of the way, it is probable he would have been able to prevent

the occurrence of the accident. Flagman Allard had been employed practically continuously since 1918 and had been in passenger service since September, 1923.

"The testimony is conflicting as to whether or not Engineman Sullivan, of train No. 2, whistled out a flag either before or after his train came to a stop, but from the evidence it is doubtful whether he took such action. The rules provide a whistle signal for this purpose, and Rule 943, relating to the duties of engineman, makes them responsible for 'the exact observance of all signals and other precautions established for the safety of trains.'

"Engineman Sullivan knew his train was losing time and that at Buda it was on the time of train No. 8. The stop at that point was unusual, and Engineman Sullivan should have been prompted to take all possible precautions for the safety of his train. In view of the manner in which Flagman Allard performed his duties, there is no assurance that the sounding of the proper whistle signal by Engineman Sullivan would have prevented the occurrence of the accident, but if such a signal had been sounded Flagman Allard might have more diligently performed his duty.

"The evidence in this investigation discloses that the operator at Buda cleared the calling-on signal without instructions to do so and when the approaching train was not to be diverted to another track. This signal, therefore, was used solely to avoid a stop required by the block signal of a train which was not to be diverted from the normal current of traffic. The calling-on signal was not intended to be used for this purpose. While it does not appear that the clearing of the calling-on signal had any direct bearing upon this accident, it is possible the delay to train No. 8 which would have been caused by coming to a complete stop would have resulted in the flagman of the preceding train reaching a point where he would have been seen by Engineman Huber in time to have averted this accident. The officials of this railroad should take steps to see that the use of these calling-on signals is restricted to the purposes for which they were installed. . . ."

THE METROPOLITAN LIFE INSURANCE COMPANY, New York City, announces that the group life and indemnity insurance policy written by that company for 6,000 employees of the Great Northern Railway in April, 1923, has proved so popular that the employees are now increasing the amounts of the insurance benefits for which they contribute. The insurance company has drawn an average of seven checks for members each working day, for sickness and accident benefits; 26 members have received payment throughout the whole stipulated period of 26 weeks, and 48 have collected benefits for more than one illness or accident. Metropolitan nurses, providing free service, have made nearly 500 visits to Great Northern employees.



An Old-Timer



## Selling the Roads to Their Patrons

By Franklin Snow

**T**HERE IS AMPLE PROOF that the public relations campaign of the railroads—individually and collectively—has been eminently successful. But a railroad statement issued a short time ago indicates that at least one channel of conducting this work has been largely overlooked.

The recently issued annual report of the Great Northern carries the information that the average holdings of its stock are 56 shares per person. Now 56 shares of railroad stock (selling at about \$60 a share), would represent an investment of \$3,360, which to many, is a fairly substantial investment in railroad securities at the present time. Indeed, it would seem to place the owner of this stock out of the "average" class of investor, if comparison is made with the "average wealth per capita" statistics.

The annual report of the American Telephone & Telegraph Company shows average holdings of 26 shares per stockholder—a far more representative distribution. And the average constantly is being lowered.

This company appreciates not only the desirability, but the actual business advantages of a great army of stockholders. Its present low average per stockholder is not entirely a matter of luck, nor of preference among small investors for A. T. & T. stock. It is the result of a very carefully planned and developed method of encouraging the purchase of the company's stock on easy terms with interest credited on the monthly payments made by purchasers under its partial payment plan.

It is generally known that the company in question has urged its employees to become partners in the enterprise and at present, upward of 40,000 are part owners of the company. But aside from this, it is making a constant and intensive campaign to encourage outsiders, principally telephone subscribers, to buy its stock upon the exceedingly liberal terms which it offers.

It seems timely to outline the methods which this well-managed institution has evolved for the purpose of making partners of its customers. With the possible exception of the Pennsylvania System, which prides itself (and justly so) upon its number of stockholders, there is no railroad today which interests itself in this fertile field of public relations work.

That it is a fertile field can hardly be questioned, for assuredly every stockholder is a "booster" for the company in which his funds are invested. While it is true that there are only a few railroads which have a sufficiently favorable dividend rate to be in a position effectively to solicit more persons to become stockholders in the enterprise, it is equally true that the several roads returning the greatest "yield" upon their capital stocks, notably the New York Central, Atchison, Southern Pacific, Union Pacific and Pennsylvania are among the largest.

Briefly, the Telephone Company's method is to enlist the co-operation of its branch managers, who, in their own hours and without remuneration, discuss the proposition at the homes of the subscribers of the component companies which go to make up the Bell System.

Any person desiring to purchase stock on a partial payment plan may do so in payments of \$10 a month or multiples thereof. The stock is purchased at once by a subsidiary financing company (the Bell Telephone Securities Company) and is held in the purchaser's name until he shall have completed his payments. And in addition to doing the necessary bookkeeping, the company credits the purchaser of stock with 6 per cent a month upon the money which he pays in until the final payment is to be made, when the

total credits are deducted from the last installment due.

There is perhaps nothing particularly novel about this plan. But sometimes in the least spectacular schemes may be found the greatest merit. And in this offer of the A. T. & T. may be discerned real business acumen. By making partners out of many of the telephone subscribers, and thereby insuring the placing in their hands of the annual reports, the quarterly statements and other brief announcements, it is possible to build up a considerable amount of good-will. Also, it is certain that these stockholders will exert a very effective influence in quiet missionary work among their friends, or openly with their political representatives, in an effort to forestall any adverse legislation affecting in any way, the rates, the rights or the patents of the telephone company.

The wider the distribution of stock, naturally the more potential allies the company may count upon . . . Which is as true of a railroad as of any other public utility company.

Ninety-three shares obviously is not a representative distribution of railroad securities. To reduce this average materially by purchasing in the open market part of the floating supply and selling it back to small investors upon a partial payment plan with interest on moneys paid in, would not be entirely an out-of-pocket expense to a railroad, for while it is paying out 6 per cent interest, it will be receiving dividends from itself upon the stock which it holds, at the rate of 5, 6, 7 or 10 per cent.

The American Telephone & Telegraph Company is one of the most prosperous public utility companies in this country. And more closely than any other industry, it resembles the railroad in its operation and organization. It has found a means of making friends, not only through the actual increase in its number of stockholders, but by the very reason of its liberal and helpful manner of enabling small investors to acquire stock in the company—a privilege for which those who have accepted it are appreciative.

There may be some who are skeptical of any real assistance a stockholder can be to a company; some, perhaps, look upon him as a necessary nuisance who endeavors to obstruct the wheels of progress by means of "minority committees," "protective committees" and the like. Parenthetically, it might be asked if these would exist if they were not occasionally necessary.

As a concrete example of the stockholder's aid, the following is cited: Two travelers to the Pacific Coast recently have told me that they traveled, respectively, via the Santa Fe and the Northern Pacific, solely because they are stockholders in these roads. Their purpose was two-fold: First, to give "their" company their patronage, and second, to "inspect" the property. Perhaps an inspection by a layman is not a very illuminating experience, but it is not unlikely that if he or she is satisfied with the service, the latent desire to boost (inherent in any stockholder at all times) is developed to an even greater extent.

Indeed, for purely mercenary motives stockholders are active, willing and voluntary press agents for the companies in which they are partners. And in a railroad sense, aside from the advantages which may accrue to the individual carrier in developing additional traffic through this means, the welfare of *all* the roads surely will be enhanced, for what is helpful to one on the broader questions of policy, is as beneficial to all.

A large army of stockholders cannot but be a powerful influence for good.

A PRESS DISPATCH from Odessa, Russia, August 28, reports the derailment of a westbound passenger train, which had left that city on the 27th for Moscow, and which had proceeded about 200 miles, in which 40 passengers were killed and a large number injured. The coaches took fire from the locomotive. Reports indicated that the track had been maliciously tampered with.

## Rebuilding Narrow Gage Cars

By Lucas Dreith

Repair Track Foreman, Denver & Rio Grande Western,  
Alamosa, Colo.

THE rebuilding of freight car equipment in a minimum number of hours per car has for some time been claiming the attention of car department officers, and good results have been obtained by using the competitive gang method. The Denver & Rio Grande Western has recently



Frame of Narrow Gage Box Car Rebuilt in 30 Man-Hours

completed at its Alamosa shops 100 narrow gage box cars of 50,000 lb. capacity. The operations were divided into groups and it took nine different groups to finish one car. The men working on each group of operations were specialists on the particular repair job which they performed. The cars were all dismantled before the various operations were started and were rebuilt on an open repair track to which all material was delivered by helpers. The cars were not moved from



Narrow Gage Box Car Rebuilt in 81¼ Man-Hours

one operation to another and no special provisions were made for additional or extra facilities.

The following table shows the various operations and the average time of completing each:

Operation	Work performed	Man-hours per operation
1	Trucks .....	3¼
2	Underframe .....	16
3	Post braces and plates .....	14
4	Decking, lining, grain strips .....	7
5	Siding and facing .....	5
6	Roof sheathing and roof .....	4¼
7	Doors, safety appliances, corner irons .....	16
8	Brake rigging and air pipe work .....	13¼
9	Painting and stenciling .....	2¼
Total man-hours to complete one car.....		81¼

### Material Required for Each Car

The frame work of the car was constructed from Oregon pine and oak. Each car required the following timbers:

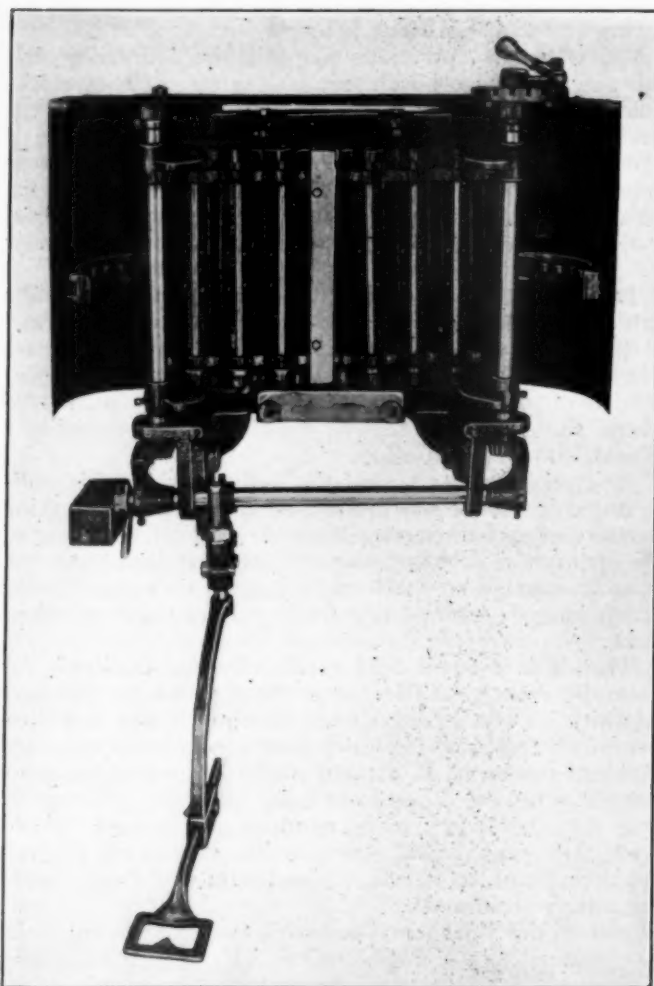
No. of Pieces	Name of timber	Size of each
2	Side sills.....	5 in. by 9 in.
2	Center sills.....	5 in. by 9 in. (A. R. A. standard oak splice at end)
2	Intermediate sills.....	4 in. by 7 in.
2	End sills.....	6 in. by 11 in.

The upper frame required 20 posts and 16 braces, with side plates 4 in. by 6 in., end plates 3 in. by 11 in., and seven metal roof carlings. The siding, sheathing and lining consisted of 7/8-in. by 3¼-in. hard pine boards. The flooring was made from 1¾-in. by 7¼-in. Oregon pine. The roof and sheathing was covered with an outside metal XLA roof. Each car required 47 bolts, 16 rivets, 4,868 nails, 732 30-penny spikes and 134 screws.

## Revolving Firebox Door

A FIRE BOX DOOR constructed on the principle of a roll top desk has been designed by Frank Matthews, Montreal, Canada. It is operated by its own mechanism without the aid or use of air, steam or electricity.

The door is strongly and peculiarly constructed of steel



Locomotive Firedoor Operated by its Own Mechanism Without the Aid or Use of Air

and cannot be blown open by an internal explosion. The front it made of eight panels, four on either side. The inside and outside panels are made of steel. The middle plate is made of asbestos and the whole is riveted together. This construction tends to make the door cool.

The top covering and the side wings act as deflectors, throwing the glare down to the floor of the cab enabling the engineman to see his signals more clearly at night.



# General News Department

The shops of the National Railways of Mexico, at Aguascalientes, together with a large number of freight cars, are reported destroyed by fire; estimated total loss, \$500,000.

The Brotherhood of Locomotive Engineers Securities Corporation is the latest of the financial institutions which have been established by the Brotherhood of Locomotive Engineers. It has opened its office at 110 East 42nd street, New York.

The Central Railway Club, Buffalo, N. Y., will hold its next regular meeting at the Hotel Statler, on Thursday evening, September 11, at 8:15, daylight saving time. E. R. Boa, road foreman of engines on the New York Central, will read a paper on the smooth handling of trains, both passenger and freight.

The Canadian Pacific announces that it will carry lumber from Vancouver Island to Illinois, Wisconsin, Ohio and Minnesota at the same rates as are in effect from Seattle. The lumber will be carried by the Canadian Pacific to Minneapolis, Minn., and thence over the Chicago, Milwaukee & St. Paul.

## Fire Prevention Rules

The standards for storage and handling of gasoline and electric trucks in freight houses, as adopted last year by the Railway Fire Protection Association, have been made the subject of a circular, "Bulletin No. 13," which is being distributed by the Railroad Insurance Association, 80 Maiden Lane, New York City.

## A Whole Day of Automatic Train Control

At the fifteenth meeting of the Signal section of the American Railway Association which will be held at the New Ocean House, Swampscott, Mass., on September 23, 24 and 25, the second day, Wednesday, will be set aside for the discussion of the subject of automatic train control. The session will start at 8 a. m., Eastern time. All papers will be limited to 20 minutes. The program will be divided into three parts, the first covering tests conducted on the Pennsylvania, the Atchison, Topeka & Santa Fe, the Union Pacific, the New York Central, and the Southern Pacific. The second part will cover the relation of air brakes to train control and include an analysis of accident records. The third will cover installations now in service on the Chicago & Eastern Illinois, the Chesapeake & Ohio, and the Chicago, Rock Island & Pacific. Following the presentation of the subject matter above referred to, there will be five-minute discussions of the subject of train control by representatives of train control companies.

## M.-K.-T. Safety Exhibit

The safety exhibit of the Missouri-Kansas-Texas, shown at the Missouri State Fair, at Sedalia, last month and which is to be shown at other fairs in cities along the line of that road included a novel "human interest" feature in the person of Layland Myatt, of Burleson, Texas, a boy of 14 years who lost one of his legs while trying to board a moving freight train at Fort Worth four years ago. The boy sat in a quiet corner of the railroad company's space and gave out cards, addressed "To Boys and Girls," bearing a caution against repeating his mistake, accompanied by a photograph of himself on crutches.

The main feature of this safety exhibit is a series of models and illustrations explanatory of highway crossing signals and other devices designed for the protection of the public. About 200,000 people attended the Missouri fair, and most

of them saw this exhibit. One of the circulars of the railroad company calls attention to the fact that—

"Not all of the persons killed at highway crossings are joy riders; on the Missouri-Kansas-Texas lines, in four years, the list included 31 farmers, 22 women, 18 children, 16 tourists, 15 truck drivers, 3 doctors and 2 ministers."

## Railroad Wage Statistics for June

The number of employees reported by Class I railroads for the month of June, 1924, was 1,770,565, a decrease of 163,364 or 8.4 per cent as compared with the returns for the same month last year, according to the Interstate Commerce Commission's monthly bulletin of wage statistics. The total amount of compensation decreased \$29,632,263 or 11.4 per cent. While each reporting group shows a marked reduction, the principal decreases occurred in the maintenance of equipment and train and engine service groups.

Compared with the returns for the previous month, total decreased 21,939 or 1.2 per cent and the total compensation decreased \$10,533,603 or 4.4 per cent. June had one less working day than May. The employment in the train and engine service group reached the lowest point since August, 1922.

THE MONTHLY EARNINGS, BY GROUPS, WERE AS FOLLOWS:

Group	Monthly earnings of			
	Employees reported on daily basis		Employees reported on hourly basis	
	June 1924	June 1923	June 1924	June 1923
Executives, officials and staff assistants.....	\$437	\$427	.....	.....
Professional, clerical and general.....	182	178	\$122	\$122
Maintenance of way and structures.....	240	238	88	93
Maintenance of equipment and stores.....	245	243	117	127
Transportation (other than train, engine and yard).....	98	97	121	121
Transportation (yardmasters, etc.).....	260	257	148	145
Transportation (train and engine service).....	.....	.....	183	187

INCREASES OR DECREASES IN THE NUMBER OF EMPLOYEES, BY GROUPS, JUNE, 1924, COMPARED WITH PREVIOUS MONTH, AND WITH JUNE, 1923

Group	June, 1924, compared with	
	May, 1924	June, 1923
	Decrease	Decrease
Executives, officials and staff assistants.....	51	105
Professional, clerical and general.....	1,257	5,525
Maintenance of way and structures.....	1,785	29,724
Maintenance of equipment and stores.....	10,802	83,193
Transportation (other than train, engine and yard).....	923	9,318
Transportation (yardmasters, etc.).....	440	1,977
Transportation (train and engine service).....	6,681	33,522
Net decrease.....	21,939	163,364

## Master Painters Addressed by W. E. Dunham

The Equipment Painting section of the Mechanical Division of the American Railway Association held its third annual meeting at the Hotel Sherman, Chicago, on September 2, 3 and 4. R. H. Aishton, president of the American Railway Association, was to have delivered the opening address but could not be present. W. E. Dunham, superintendent of the car department of the Chicago & North Western, spoke in part as follows: "This is the age of the specialist, and the painter of railway equipment must be a specialist in every sense of the word if he expects to meet properly the situation confronting him. Being a specialist does not anticipate narrowness of vision on his part. Narrowness makes for crankiness and that is exactly what we do not need or want. The protection of steel in freight and passenger equipment from corrosion is of vital importance to railroads now and is becoming more important every day. The master painters should go on record in a straightforward, two-fisted manner as to what must be done with this steel from the time it is made ready, piece by piece, for erecting, until the car is completed, to stop the fearful waste that rust is causing. With such experience as you and

others have had since the first steel cars were made, and with your knowledge of present-day shop practices, this can and will be done." Mr. Dunham went on record as favoring a committee report on shop and maintenance practice to be used by members of the section as Recommended Practice. He also spoke at some length on the necessity of encouraging railroad employees to be loyal, especially at the present time when so much social and financial unrest is prevalent, and when a constant stream of cure-all plans is being presented by men whose chief claim to recognition is "loudness of voice or the astuteness of their press agents."

The meeting was presided over by Acting Chairman F. W. Bowers, Erie. One of the first actions of the section was to pass suitable resolutions in honor of Chairman W. A. Buchanan, D. L. & W., who passed away during the year. One of the interested attendants at the convention was Warner Bailey, 91 years old, formerly associated with the Boston & Maine as a master painter and the only living charter member of the Master Car and Locomotive Painters' Association, which in 1920 became the Equipment Painting Section of the Mechanical division.

### Chicago Terminal Plans

Plans for the consolidation of the LaSalle street, the Dearborn street and the Grand Central passenger stations in Chicago are taking definite form and an announcement of the program agreed upon by the committee of presidents of the roads involved is expected soon. According to Mayor Dever, of Chicago, the proposed terminal will be similar to the Grand Central terminal in New York, in that it will be surrounded by two-level streets and will have depressed tracks over which office buildings will be erected. The Committee on Railroad Terminals of the Chicago city council expects to start next month on a tour of eastern passenger stations.

### Stock Issuance Fees Protested

Claims for the refund of approximately \$250,000 from the state of Illinois will be presented by the New York Central and 11 other railroads to the state Court of Claims in Springfield, Ill., on September 8. The amount in litigation represents fees paid to the state upon the issuance of shares of stock to pay for improvements. The fees were collected by the state over the objection of the railroad companies, who argued that the stock was not all sold in Illinois and consequently the paying of an Illinois tax on the entire issues was unconstitutional.

## Meetings and Conventions

*The following list gives names of secretaries, dates of next or regular meetings and places of meetings.*

- AIR BRAKE ASSOCIATION.**—F. M. Nellis, 165 Broadway, New York City. Next convention, May 5-8, 1925, Los Angeles, Calif. Exhibit by Air Brake Appliance Association.
- AIR BRAKE APPLIANCE ASSOCIATION.**—John Wright, Westinghouse Electric & Manufacturing Co. Meeting with Air Brake Association.
- AMERICAN ASSOCIATION OF ENGINEERS.**—C. E. Drayer, 63 E. Adams St., Chicago.
- AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.**—Grant Williams, 1341 Railway Exchange, Chicago. Annual meeting, September 23, Louisville, Ky.
- AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.**—E. L. Duncan, 332 So. Michigan Ave., Chicago. Annual meeting, June 23, 1925, Portland, Ore.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.**—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Next meeting, October 2 and 3, New York.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.**—J. Rothchild, Room 400, Union Station, St. Louis, Mo. Next convention, June 16-19, 1925, Richmond, Va.
- AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.**—L. A. Stone, C. & E. I. Ry., Chicago. Annual meeting, October 14-17, 1924, Montreal, Canada.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.**—J. W. Welsh, 8 W. 40th St., New York. Next meeting, October 6-10, Atlantic City, N. J.
- AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.**—C. Borchardt, 202 North Hamilton Ave., Chicago, Ill.
- AMERICAN RAILWAY ASSOCIATION.**—H. J. Forster, 30 Vesey St., New York, N. Y.
- Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Freight Station Section (including former activities of American Association of Freight Agents).—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill. Next meeting, May 19-21, 1925, Kansas City, Mo.
- Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association).—J. C. Caviston, 30 Vesey St., New York, N. Y.

Safety Section.—J. C. Caviston, 30 Vesey St., New York.

Telegraph and Telephone Section (including former activities of the Association of Railroad Telegraph Superintendents).—W. A. Fairbanks, 30 Vesey St., New York. Next meeting, September 9-11, 1924, Quebec, P. Q.

Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting Officers).—G. W. Covert, 431 South Dearborn St., Chicago, Ill.

Division III.—Traffic, J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Next annual meeting, March 10-12, 1925, Chicago.

Exhibit by National Railway Appliances Association.

Construction and Maintenance Section.—E. H. Fritch.

Electric Section.—E. H. Fritch.

Signal Section (including former activities of the Railway Signal Association).—H. S. Balliet, 30 Vesey St., New York, N. Y. Next meeting, Sept. 23-25, 1924, New Ocean House, Swampscott, Mass.

Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Exhibit by Railway Supply Manufacturers' Association.

Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

Division VI.—Purchases and Stores (including former activities of the Railway Storekeepers' Association).—W. J. Farrell, 30 Vesey St., New York, N. Y. Exhibit by Railway Supply Manufacturers' Association.

Division VII.—Freight Claims (including former activities of the Freight Claim Association).—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill. Annual meeting, May 25, 1925, Kansas City, Mo.

Car Service Division.—C. A. Buch, 17th and H Sts., N. W., Washington, D. C.

**AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.**—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Next annual convention, Oct. 21-23, 1924, Kansas City, Mo. Exhibit by Bridge and Building Supply Men's Association.

**AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.**—A. L. Moorshead, Industrial Engineer, Erie, New York City. Next meeting, May 13, 1925, San Antonio, Texas.

**AMERICAN RAILWAY ENGINEERING ASSOCIATION.**—(Works in co-operation with the American Railway Association, Division IV.) E. H. Fritch, 431 South Dearborn St., Chicago. Annual meeting, March 10-12, 1925, Chicago. Exhibit by National Railway Appliances Association.

**AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.**—(See American Railway Association, Division V.)

**AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—J. A. Duca, Tool Foreman, C. R. I. & P. Ry., Shawnee, Okla. Exhibit by Supply Association of the American Railway Tool Foremen's Association.

**AMERICAN SHORT LINE RAILROAD ASSOCIATION.**—T. F. Whittelsey, 1319-21 F St., N. W., Washington, D. C.

**AMERICAN SOCIETY FOR STEEL TREATING.**—W. H. Eisenman, 4600 Prospect Ave., Cleveland, Ohio. Next convention, Sept. 22-26, Commonwealth Pier, Boston.

**AMERICAN SOCIETY FOR TESTING MATERIALS.**—C. L. Warwick, 1315 Spruce St., Philadelphia, Pa.

**AMERICAN SOCIETY OF CIVIL ENGINEERS.**—33 W. 39th St., New York. Regular meetings 1st and 3rd Wednesdays in month, except July and August, 33 W. 39th St., New York.

**AMERICAN SOCIETY OF MECHANICAL ENGINEERS.**—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, A. F. Stuebing, Chief Engineer, Bradford Draft Gear Co., 23 W. 43rd St., New York.

**AMERICAN TRAIN DISPATCHERS' ASSOCIATION.**—C. L. Darling, 1310-1311 Mallett Bldg., Chicago, Ill. Biennial convention, July 20, 1925, Chicago.

**AMERICAN WOOD PRESERVERS' ASSOCIATION.**—P. R. Hicks, Room 1146, Otis Bldg., Chicago. Annual meeting, February 3-5, 1925, Congress Hotel, Chicago.

**ASSOCIATION OF RAILWAY CLAIM AGENTS.**—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Annual meeting, June 17, 1925, Winnipeg, Canada.

**ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.**—Jos. A. Andreucetti, C. & N. W. Ry., Room 411, C. & N. W. Sta., Chicago. Next meeting, October 20-24, Hotel La Salle, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

**ASSOCIATION OF RAILWAY EXECUTIVES.**—Stanley J. Strong, 17th and H Sts., N. W., Washington, D. C.

**ASSOCIATION OF RAILWAY SUPPLY MEN.**—A. W. Clokey, 1658 McCormick Bldg., Chicago. Meeting with International Railway General Foremen's Association.

**ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.**—(See American Railway Association, Division I.)

**ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.**—(See American Railway Association, Division II.)

**BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.**—John Nelson, Joseph E. Nelson & Sons, 3240 South Michigan Ave., Chicago. Meetings with convention of American Railway Bridge and Building Association.

**CANADIAN RAILWAY CLUB.**—C. R. Crook, 129 Charron St., Montreal, Que.

**CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

**CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.**—R. E. Giger, 721 North 23rd St., East St. Louis, Ill. Meetings, first Tuesday in month at the American Hotel Annex, St. Louis.

**CENTRAL RAILWAY CLUB.**—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2nd Thursday, January to November. Interim meetings, 2nd Thursday, February, April, June, Hotel Statler, Buffalo, N. Y.

**CHICAGO CLAIM CONFERENCE.**—Personal Injury Section. Parks C. Archer, General Claim Agent, Chicago & Alton R. R., 340 Harrison St., Chicago. Meets 12:30 p. m., first Monday each month, City Club, 315 Plymouth Court, Chicago.

**CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.**—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago. Annual meeting, September 23-25, Sherman Hotel, Chicago.

**CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S SUPPLY MEN'S ASSOCIATION.**—Bradley S. Johnson, W. H. Miner, Rookery Bldg., Chicago, Ill. Meeting with Chief Interchange Car Inspectors' and Car Foremen's Association.

**CINCINNATI RAILROAD CLUB.**—W. C. Cooder, Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.

**CLEVELAND STEAM RAILWAY CLUB.**—F. L. Frericks, 14416 Adler Ave., Cleveland, Ohio. Meetings, first Monday each month, Hotel Cleveland, Public Square, Cleveland.



**DIXIE RAILWAY CLUB.**—T. C. Schley, 71 Conti St., Mobile, Ala. Regular meetings, bi-monthly, second and fourth Fridays, Batic House Hotel, Mobile, Ala.

**EASTERN RAILROAD ASSOCIATION.**—E. N. Bessling, 614 F St., N. W., Washington, D. C. Annual meeting, May 14, 1925, Railroad Club, New York.

**FREIGHT CLAIM ASSOCIATION.**—(See American Railway Association, Division VII.)

**GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.**—C. H. Treichel, Grand Central Station, Chicago. Regular meetings, Wednesdays, preceding 3rd Friday in month, Room 1414, Manhattan Bldg., Chicago.

**INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.**—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.

**INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.**—George P. White, 747 Railway Exchange, Chicago. Meeting with International Railroad Master Blacksmiths' Association.

**INTERNATIONAL RAILWAY FUEL ASSOCIATION.**—J. B. Hutchison, 6000 Michigan Ave., Chicago. Next annual convention, May, 1925, Chicago. Exhibit by International Railway Supply Men's Association.

**INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.**—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn. Annual convention, September 9-12, Hotel Sherman, Chicago.

**INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.**—F. S. Wilcoxon, Edna Brass Manufacturing Company, Cincinnati, Ohio. Meeting with International Railway Fuel Association.

**MASTER BOILER MAKERS' ASSOCIATION.**—Harry D. Vought, 26 Cortlandt St., New York.

**MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION.**—See A. R. A., (Division V.)

**MASTER CAR BUILDERS' ASSOCIATION.**—(See A. R. A., Division V.)

**NATIONAL ASSOCIATION OF RAILWAY TIE PRODUCERS.**—J. S. Penney, T. J. Moss Tie Company, St. Louis, Mo. Next convention, 1925, Chicago.

**NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.**—James B. Walker, 49 Lafayette St., New York. Next convention, Nov. 11, 1924, Phoenix, Ariz.

**NATIONAL FOREIGN TRADE COUNCIL.**—O. K. Davis, 1 Hanover Square, New York.

**NATIONAL RAILWAY APPLIANCE ASSOCIATION.**—C. W. Kelly, People's Gas Bldg., Chicago. Annual exhibition at convention of American Railway Engineering Association.

**NATIONAL SAFETY COUNCIL.**—Steam Railroad Section: E. R. Cott, Safety Agent, Hocking Valley Ry., Columbus, Ohio. Annual congress, Hotels Brown and Seelbach, Sept. 29-Oct. 3, Louisville, Ky.

**NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2nd Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

**NEW YORK RAILROAD CLUB.**—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3rd Friday in month, except June, July and August, at 29 W. 39th St., New York.

**PACIFIC RAILWAY CLUB.**—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings, 2nd Thursday in month, alternately in San Francisco and Oakland.

**RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.**—E. R. Woodson, 1116 Woodward Building, Washington, D. C.

**RAILWAY BUSINESS ASSOCIATION.**—Frank W. Noxon, 600 Liberty Bldg., Broad and Chestnut St., Philadelphia, Pa.

**RAILWAY CLUB OF PITTSBURGH.**—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

**RAILWAY DEVELOPMENT ASSOCIATION.**—(See Am. Ry. Development Assn.)

**RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.**—J. Scribner, General Electric Co., Chicago. Annual meeting with Association of Railway Electrical Engineers.

**RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.**—H. A. Varney, Sunbeam Electric Manufacturing Co., Evansville, Ind. Meeting with Traveling Engineers' Association.

**RAILWAY FIRE PROTECTION ASSOCIATION.**—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 21-23, Richmond, Va.

**RAILWAY REAL ESTATE ASSOCIATION.**—R. H. Morrison, C. & O. Ry., Richmond, Va.

**RAILWAY SIGNAL ASSOCIATION.**—(See A. R. A., Division IV., Signal Section.)

**RAILWAY STOREKEEPERS' ASSOCIATION.**—(See A. R. A., Division VI.)

**RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.**—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa.

**RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.**—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

**RAILWAY TREASURY OFFICERS' ASSOCIATION.**—L. W. Cox, Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, September 18 and 19, Montreal, Canada.

**ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.**—P. J. McAndrews, C. & N. W. Ry., Sterling, Ill. Next convention, September 16-18, 1924, Hotel Commodore, New York. Exhibit by Track Supply Association.

**ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2nd Friday in month, except June, July and August.

**SIGNAL APPLIANCE ASSOCIATION.**—F. W. Edmunds, Sunbeam Electric Manufacturing Company, New York City. Meeting with American Railway Association, Signal Section.

**SOUTHEASTERN CARMEN'S INTERCHANGE ASSOCIATION.**—J. E. Rubley, Southern Railway Shop, Atlanta, Ga. Meets semi-annually.

**SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.**—A. J. Merrill, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, July, September and November, Piedmont Hotel, Atlanta.

**SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.**—J. L. Carrier, Car. Serv. Agent, Tenn. Cent. Ry., 319 Seventh Ave., North Nashville, Tenn.

**SUPPLY ASSOCIATION OF AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—H. S. White, 9 N. Jefferson St., Chicago.

**TRACK SUPPLY ASSOCIATION.**—W. C. Kidd, Ramapo-Ajax Corporation, Hillburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association.

**TRAVELING ENGINEERS' ASSOCIATION.**—W. O. Thompson, 1177 East 98th St., Cleveland, Ohio. Next convention, September 16-19, 1924, Chicago. Exhibit by Railway Equipment Manufacturers' Association.

**WESTERN RAILWAY CLUB.**—Bruce V. Crandall, 605 North Michigan Ave., Chicago. Annual meeting, May 23, Edgewater Beach Hotel, Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

**WESTERN SOCIETY OF ENGINEERS.**—Edgar S. Nethercut, 1735 Monadnock Bldg., Chicago, Ill.

## Traffic News

The Glenmora & Western has been authorized by the Public Service Commission of Louisiana to abandon its line between Macnary and Holdup, 15 miles.

The Canadian National Railways report for the month of July a decrease in gross earnings of \$837,738, or 4 per cent, as compared with July, 1923. Operating expenses increased \$55,801, or 0.3 per cent and net earnings decreased \$893,539.

The Northern Pacific is exhibiting in principal cities one of its gasoline electric motor coaches which it will use on the system to compete with buses. The car used for demonstration will be assigned to the run between Fargo, N. Dak., and Staples, Minn.

An exceptionally attractive booklet describing the country through which the Oriental Limited passes has been published by the Great Northern. The booklet is entitled "Seven Sunsets" and was written by Grace Flandrau. It is profusely illustrated with photographs and sketches.

Revenue car loadings reported by the railways of Canada for the week ended August 23 amounted to 50,894, a slight improvement over the previous week. Coal loading in the Eastern division continued light, and grain loading has not yet been affected by the new crop. Compared with the same week last year the loading was lighter by 3,078 cars.

The Pullman surcharge hearing, which was reopened by the Interstate Commerce Commission at St. Paul, Minn., on August 25, in order to gather technical matter to support the evidence in previous investigations by the commission which led to the recommendation that the surcharge on Pullman tickets be dropped was adjourned until September 26, upon the suggestion of attorneys for the Pullman Company in order to allow representatives of both sides to study the various reports.

"Japan" is the title of a handsome 24-page folder with maps and other illustrations which has been issued by the Japanese Government Railways in conjunction with the Japan Hotel Association for the benefit of people throughout the English-speaking world who may be contemplating a visit to Japan. Inquirers are referred to the Japan Tourist Bureau. The only American addresses given in the folder are those of Thomas Cook & Son and the American Express Company at New York and San Francisco.

## Industrial Advertising Exhibit

The annual convention of the National Industrial Advertisers' Association will be held at the Edgewater Beach Hotel, Chicago, on Monday and Tuesday, October 13 and 14. In connection with the convention an exhibit of industrial advertising will be displayed, this including the prize winning panels of the London exhibit of the National Industrial Advertising Association. The exhibits will be divided into five sections: the advertising of manufacturers in the industrial field, of technical service agencies, of trade and business papers, of direct mail, catalogues and literature and posters, and of bulletins and other displays. Prizes will be awarded to the best exhibits in the various classifications. The program of the two-day session will include addresses by industrial advertising and sales executives and reports of committees.

THE CHICAGO, ROCK ISLAND & PACIFIC has been authorized by the Louisiana Public Service Commission to remove its tracks from and abandon its line from a point 1,000 ft. north of where it crosses the Louisiana & Arkansas in the town of Winnfield to the South boundary of Winn Parish, a distance of 9.53 miles. The line in question forms a part of the Rock Island's line from Tinsman, Ark., to Eunice, La.; that portion of the line between Winnfield and Packton is paralleled by the Louisiana & Arkansas, and it is understood that trackage rights have been secured over the Louisiana & Arkansas. The proposed abandonment, therefore, will not break the continuity of the Rock Island's through line.

## Commission and Court News

### Personnel of Commissions

Thomas J. Brown, a member of the Missouri Public Service Commission, has been appointed chairman of that body, succeeding M. S. Otis, who has resigned.

### State Commissions

The Public Service Commission of New York has denied the application of Charles L. Wagner of Fonda, N. Y., for a certificate to authorize the operation of a bus line between Amsterdam and Fonda and between Fonda and Fultonville. The distance between Amsterdam and Fonda is about 10 miles, and the commission holds that the numerous trains operated by the New York Central afford reasonable accommodation to passengers traveling between these places. "There does not seem to be a strong public demand for the operation of the proposed bus route," the decision says.

### Court News

#### Statute Legalizing Service on

##### Soliciting Agent Held Invalid

The Minnesota Supreme Court holds that a statute providing for service of a foreign carrier by service on its soliciting agent within the state is invalid.—*Gamble-Robinson Co. v. Pennsylvania* (Minn.) 196 N. W. 266.

#### Refusal to Perform Special Services Not Negligence

The Nebraska Supreme Court holds that, in an interstate shipment of fruit, the refusal of the carrier to perform special services en route, such as roundhousing a car of bananas or attaching it to a passenger train will not support a charge of negligence, unless, perhaps, in case of great emergency.—*Dolan Fruit Co. v. Davis* (Neb.) 196 N. W. 168.

#### Contributory Negligence of Passenger in Automobile

The negligence of the driver of an automobile is not always imputable to the passenger, but the Circuit Court of Appeals, Eighth Circuit, holds that where the passenger had a better opportunity than the driver to observe the train at a crossing and in sufficient time to warn him, and did not do so, she was guilty of contributory negligence as a matter of law.—*Noble v. Chicago, M. & St. P.*, 298 Fed. 381.

#### State-owned Railroad within

##### Federal Safety Appliance Act

The Circuit Court of Appeals, Ninth Circuit, holds that the State Belt Railroad, traversing the San Francisco harbor front and belonging to the state of California, is a common carrier and one of the late connecting links between consignors and consignees of interstate freight and that it must therefore comply with the federal Safety Appliance Act.—*McCallum v. United States*, 298 Fed. 373.

#### Delay in Transporting Cattle—

##### Damages Affected by Shipper's Orders

The Nebraska Supreme Court holds that where, on the shipper's order, cattle were unloaded and held for several days to condition them and await a favorable market, the measure of damages for a negligent delay of three days in furnishing cars was not the difference in value between the market value when they finally arrived and when they should have arrived, but between the date they should have arrived and the date they would have arrived but for the orders of the shipper, delaying the trip.—*Peterson & Howe v. Davis* (Neb.) 196 N. W. 113.

#### Excessive Verdict Where No

##### Objective Symptoms Shown

The Minnesota Supreme Court holds that a verdict for \$2,750 for personal injuries of which there were almost no external evidence was excessive, and that no considerable verdict should be allowed to stand upon proof of subjective symptoms only. A new trial was granted unless plaintiff consented to a reduction to \$1,750.—*Levan v. Rock Island* (Minn.) 196 N. W. 673.

#### Damages for Ejection of Passenger

The Kentucky Court of Appeals holds that a verdict of \$1,000 was excessive for an ejected passenger's inconvenience in continuing the trip and being compelled to return to her mother's home, eight miles distant, in the daytime.

It is also held that a passenger ejected for failure to pay half fare for her child is not entitled to tender of the full fare paid for her ticket, but only of the balance from the point of ejection.—*L. & N. v. Watson* (Ky.) 255 S. W. 1056.

#### Transportation Act—Minimum Time for Filing Claims

The federal district court for eastern Louisiana holds that carriers are at liberty to grant longer periods for the filing of claims or the institution of suits than the minimum required by section 438 of the Transportation Act; but, when the bill of lading attempts to shorten the time, the law must be considered as written into it and must govern. The act has the effect of a statute of limitations, and state laws to the contrary do not apply to interstate shipments.—*Hartness v. Iberia & Vermilion*, 297 Fed. 622.

#### Violation of Injunction Against

##### Combination of Employees a Crime

The Circuit Court of Appeals, Eighth Circuit, holds that the violation of an injunction restraining the defendants in the action of the C. B. & Q. v. International Association of Machinists and others and all persons combining and conspiring with them from interfering with the railroad's employees, etc., constitutes a crime under Missouri Rev. St. 1919, §3265.—*Steers v. United States*, 297 Fed. 116.

#### Free Passes Revocable at Will

The Minnesota Supreme Court holds that a free pass, having a printed statement on the back that it "may be revoked by the railroad at any time," is not a contract, but a license, and therefore revocable at any time. In an action of damages by the holder of such a pass for ejection from a train by the conductor because the pass was canceled, it was held permissible to prove a general revocation of passes of that kind because of their use in advancing the cause of a strike.—*Bergerson v. Great Northern* (Minn.) 196 N. W. 670.

#### Track Extension Requires Federal Permission

The federal district court for southern Texas holds that a proposed track extension 7½ miles long to cost about \$500,000 to serve industries is an extension of the railroad and not an industrial track, within section 402, par. 19, of the Transportation Act, and a certificate of authority from the Interstate Commerce Commission is required for its construction, although it has no stations, no scheduled service, no passenger nor general freight traffic.—*Lancaster v. Gulf, C. & S. F.*, 298 Fed. 488.

#### Shipper's Insurance of Stock for Benefit of Carrier

The Iowa Supreme Court holds that, while a carrier cannot require a shipper to insure live stock for its benefit, the carrier may contract with the shipper that if he does take insurance it shall inure to the carrier's benefit. Where this is done and the insurance company pays the insured the loss under a policy providing that the insured, by accepting such payment assigns his claim under the policy to the insurance company, the latter cannot recover from the carrier, because the shipper could not have recovered from the carrier, the payment to him, under the contract, inuring to the carrier, and the insurance company, standing in the shipper's shoes, could have no greater right than he had.—*Hartford Fire Ins. Co. v. Payne* (Iowa) 196 N. W. 48.



## Labor News

Ten more labor banks are to be established by the Brotherhood of Locomotive Engineers in eastern cities, including Albany, N. Y., Buffalo, Syracuse, and Newark, N. J. It is understood also that a bank is to be established at Milwaukee, Wis.

A temporary injunction restraining the Chicago, Milwaukee & St. Paul from transferring them to new divisions was obtained by 32 trainmen at Seattle, Wash., on August 20. The petition filed by the employees alleged that their seniority rights were imperiled by the transfer. The hearing on the petition was held on August 29.

James Murdock, Canadian Minister of Labor, following a conference last Saturday has decided to appoint a Board of Conciliation to arbitrate the application of the commercial telegraphers of the Canadian Pacific and Canadian National for higher wages. While technically two boards are authorized, as there are technically two different disputes, it is expected that one board will sit for both cases. The men and the companies have been asked to nominate their representatives on the board. Then a chairman will be chosen in consultation with the Minister of Labor.

### Western Roads and Enginemen Continue Wage Hearing September 8

The hearing on the long standing dispute between the engine service brotherhoods and the western railways will be reopened before the Railroad Labor Board on September 8. The first hearing, which began on July 24, was continued to this date to give the railway representatives an opportunity to secure additional information regarding existing rules and rates on certain roads. At the previous hearing representatives of the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen refused to testify regarding wages and rules on the ground that the board was acting illegally in attempting to hold the hearing. Ben W. Hooper, chairman of the Labor Board, went to Washington immediately after the hearing to seek authority to force the presence and testimony of brotherhood witnesses, but no announcement has been made as to the opinion he obtained at the attorney-general's office.

### Clerks and Freight Handlers Before Labor Board

The Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, which engaged in a campaign last spring for general wage increases on railroads throughout the country has submitted to the Railroad Labor Board the disputes with a number of the railways which refused advances. Submissions have already been filed with the board involving controversies on certain large roads, including the Northern Pacific, the Atlantic Coast Line, the New York, New Haven & Hartford, the Chicago & Eastern Illinois, the Chicago & Western Indiana, the Denver & Rio Grande Western, the Chicago, Indianapolis & Louisville, the Boston & Maine, the Maine Central, the Kansas City Southern, the New York, Chicago & St. Louis, the Cincinnati, New Orleans & Texas Pacific, the St. Louis Southwestern. The Labor Board has not set a date for the hearing of these cases as submissions relative to other lines are expected. The brotherhood is asking increases ranging from four to 16 cents an hour. On the few lines which agreed to advances last spring increases of from two to five cents an hour were accepted. Weymouth Kirkland, a Chicago attorney, has been appointed special counsel of the Railroad Labor Board. This appointment, which was made by the Department of Justice, is considered an opening move in a legal contest over the jurisdiction of the Labor Board. It is expected that a suit will be filed soon in the Federal Court, at Chicago, against the Brotherhood of Locomotive Firemen and Enginemen to compel representatives to testify before the board in the pending western railways wages and rules case.

## Equipment and Supplies

### Locomotives

THE MISSOURI PACIFIC is inquiring for 25 Mikado, 10 Pacific and 15 eight-wheel switching locomotives.

THE JEFFERSON SOUTHWESTERN has ordered one Consolidation type locomotive of 163,000 lb. from the American Locomotive Company.

### Freight Cars

THE GRAVER CORPORATION is inquiring for 2 flat cars.

THE MISSOURI PACIFIC is inquiring for 50 caboose cars.

THE READING COMPANY is inquiring for 1,000 box cars and 1,000 gondola cars.

THE HUDSON COAL COMPANY, Scranton, Pa., has ordered 30 ore cars from the American Car & Foundry Co.

THE UNITED FRUIT COMPANY has ordered 20 flat cars of 20 tons' capacity, for export, from the Magor Car Corporation.

THE UNITED VERDE COPPER COMPANY has ordered 60 rocker bottom dump cars from the Pressed Steel Car Company.

THE GENERAL PETROLEUM CORPORATION, Los Angeles, Cal., has ordered 10 tank cars of 10,000 gal. capacity, from the Pennsylvania Car Company.

THE CHESAPEAKE & OHIO has given a contract to the Richmond Car Works for equipping 1,000, 70-ton hopper bottom gondola cars with new bodies.

THE BANGOR & AROOSTOOK, reported in the *Railway Age* of August 2 as considering the purchase of material to build 50 flat cars in its shops at Derby, has recently bought the material and will rebuild these cars in its own shops.

THE PENNSYLVANIA, reported in the *Railway Age* of August 30 as inquiring for 1,000 box cars and 1,000 automobile box cars of 50 tons' capacity, has placed orders for 10,000 new, all steel box cars. The orders were divided equally between the American Car & Foundry Co., the Pressed Steel Car Company, the Standard Steel Car Company and the Bethlehem Steel Company, for delivery at an early date.

### Passenger Cars

THE MISSOURI PACIFIC is inquiring for 2 dining cars and 2 parlor cars.

THE ILLINOIS CENTRAL, reported in the *Railway Age* of August 30 as expecting to buy 215 coaches for electric service and 70 for steam service, is now inquiring for 30 coaches, 8 compartment coaches, 6 chair cars, 9 baggage cars, 10 combination baggage and mail cars, 130 suburban motor coaches and 85 suburban trailers.

### Iron and Steel

THE TEXAS & PACIFIC has ordered 9,000 tons of rail from the Bethlehem Steel Corporation.

THE NEW YORK CENTRAL is inquiring for 150,000 tons of rail with option of 25,000 tons additional.

THE GREAT NORTHERN has given an order to the American Bridge Company for 4,020 tons of structural steel and spouts, for an ore dock at Allouez, Wis.

THE LOUISVILLE & NASHVILLE has ordered 850 tons of structural steel for a bridge over the Cumberland river from the American Bridge Company and 1,450 tons for its Chef Menteur bridge from the Mount Vernon Bridge & Iron Works.

## Machinery and Tools

THE EL PASO & SOUTHWESTERN has placed an order for a 6-ft. radial drill.

THE SOUTHERN PACIFIC has ordered a combination journal turning and axle lathe.

THE CHICAGO, ROCK ISLAND & PACIFIC has placed an order for a 48-in., 400-ton, wheel press.

## Track Specialties

THE CHESAPEAKE & OHIO is inquiring for 200,000 tie plates.

THE PERE MARQUETTE is inquiring for 1,000 tons of tie plates.

THE NORTHERN PACIFIC is inquiring for 1,000 kegs of spikes, 500 tons of bolts and 1,500 tons of angle bars.

## Signaling

THE NEW YORK, CHICAGO & ST. LOUIS has ordered from the General Railway Signal Company an interlocking machine for installation at Latty, Ohio. The machine is to have 8 levers and the order includes also two signals, 32 relays and other material.

### Simplified Interlocking for Gauntlets

The Norfolk & Western, in connection with extensive double-tracking work is providing interlocked signal protection for tunnels No. 1 and No. 3 at Kermit, W. Va. These tunnels which are in the double track territory, are not being widened, and gauntlets 4,000 ft. long and 3,700 ft. long respectively, will be installed; train movements being protected by signals and derails at either end all controlled by means of interlocked levers in Kermit station, which is situated midway between the two tunnels. The distance from the station to the nearest derail is 6,200 ft. in one case and 8,100 ft. in the other. The double-tracked line is equipped with automatic block signals and the operator at Kermit controls the entrance of trains to the gauntlets by means of a two-lever interlocked circuit controller, the derails being operated by low voltage switch machines, style M. The material for this installation was furnished by the Union Switch & Signal Co.

The circuits for the control of the derails include a polarized relay controlled by the interlocked circuit controller, the normal control being taken over the normal contact and the reverse control over the reverse contact. The circuits for the control of the signals are accomplished by a polarized relay controlled by the interlocked circuit controller. This polarized relay selects between opposing signals and converging protection is accomplished by selecting the signal control over the circuit controller on the switch point. This selection guarantees the position of the switch with relation to the signal cleared, and eliminates the use of a separate indication from the switch movement to the machine. Approach stick locking is provided by means of a stick relay and a time release which introduces a time element after the signal has been put to the stop position.

## Supply Trade News

H. C. Storr, of the general sales department of S. F. Bowser & Co., Ft. Wayne, Ind., has been promoted to assistant sales manager, with the same headquarters.

The Neff & Fry Company, Camden, Ohio, manufacturers of concrete stove coal pockets, has organized a railroad sales department with offices in the Frisco building, St. Louis, Mo.

C. A. Dunn has been appointed eastern sales representative of the Prime Manufacturing Company, Milwaukee, Wis. Mr. Dunn's headquarters are at Philadelphia, Pa. He was formerly manager of the Delaware Steel Tube Company.

C. R. Chadbourne, assistant division engineer of the Mastic division of the Barber Asphalt Company, Philadelphia, Pa., has been appointed district manager of the Chicago territory of the Republic Creosoting Company, with headquarters in the Strauss building, Chicago.

Laurance Boswell, with offices in the Railway Exchange building, St. Louis, Mo., has been appointed exclusive representative for the St. Louis territory of the Magnetic Signal Company, Los Angeles, Calif., following a dissolution of partnership of Achuff & Boswell.

Albert Swartz, whose resignation as general manager of the Toledo & Western, with headquarters at Toledo, Ohio, to enter the railway supply business, was reported in the *Railway Age* of August 16, has been appointed district sales agent of the Arcco Anti-Rail-Creeping Company, Inc., with headquarters at 1526 Manhattan building, Chicago.

The American Refrigerator Transit Company has awarded contracts to Johns-Manville, Inc., New York, for hair material and to the Celotex Company, of Chicago, for Celotex material, to be used in the insulation of 2,000 refrigerator cars. The Celotex material in sheets one-half inch thick, will be applied to both the inside and outside of the framing of the side and end walls. It was erroneously reported in the *Railway Age* of August 23 that the contract for all the insulating material was awarded to the Celotex Company.

NEAR CACALILAO, MEXICO, on the right of way of the National Railways, wells are being drilled with the expectation of finding oil, the location being only 600 ft. from certain wells of the Transcontinental Petroleum Company, which are producing 25,000 barrels a day. It is said that the management of the railway plans to drill other wells, believing that considerable portions of its right of way in the Tampico and Huasteca districts contain oil. In this region, the railroad right of way is 225 ft. wide. The railroad people expect not only to supply their locomotives with fuel, but also, perhaps, to sell large quantities of oil.

FREIGHT CARS ORDERED, INSTALLED AND RETIRED

Month	Domestic orders reported during month	Installed during month	Aggregate capacity, tons	Retired during month	Aggregate capacity, tons	Owned at end of month	Aggregate capacity, tons	On order as of first of following month	Building in R.R. shops
December .....	15,004	18,690	881,168	11,411	548,950	2,307,997	100,527,725	24,379	1,515
Full year 1923 .....	94,471*	183,367	.....	185,508	.....	.....	.....	.....	.....
1924									
January .....	6,020	15,589	707,367	12,329	516,695	2,310,032	100,644,107	21,696	2,417
February .....	18,365	11,386	554,481	10,466	411,228	2,310,570	100,767,731	40,030	2,715
March .....	35,846	9,562	446,043	8,726	352,481	2,311,405	101,165,332	62,340	2,697
April .....	11,189	8,718	369,978	8,026	306,288	2,312,097	101,223,891	62,289	2,739
May .....	435	9,199	439,516	9,059	360,212	2,312,237	101,303,200	57,266	2,467
June .....	387	10,909	538,118	8,347	321,094	2,314,798	101,569,593	57,735	2,269
July .....	533	16,583	1,151,302	8,413	316,927	2,322,968	102,388,652	51,156	4,602
August .....	4,751	.....	.....	.....	.....	.....	.....	.....	.....
Total for eight months .....	77,526	.....	.....	.....	.....	.....	.....	.....	.....

(1) Details as to orders from *Railway Age* Weekly reports. Figures include all domestic orders placed with builders and railroad shops, but not rebuilt equipment.

(2) Figures as to installations and retirements prepared by Car Service Division A. R. A. Figures cover only those roads reporting to the Car Service Division. They include equipment received from builders and railroad shops. Figures of installations and retirements alike include also equipment rebuilt to an extent sufficiently so that under the accounting rules it must be retired and entered in the equipment statement as new equipment. The figure as to orders as given in the first column of table is not strictly comparable with figures relating to installations given in succeeding columns.

\*Corrected figure.



## Railway Construction

**AMERICAN RAILWAY EXPRESS COMPANY.**—This company is calling for bids for the construction of brick express buildings at Newport, Ark., Camden, Ark., and Denison, Ohio, each to cost approximately \$5,000.

**ATCHISON, TOPEKA & SANTA FE.**—This company is calling for bids for the construction of an addition to its storehouse at La Junta, Colo., to cost approximately \$80,000 and for an addition to the lavatory building, to cost \$5,000.

**CENTRAL OF GEORGIA.**—This company closed bids on September 2 for the construction of a passenger station at Opelika, Ala.

**FORT WORTH & DENVER CITY.**—This company closed bids on September 3 for the construction of a roundhouse at Childress, Tex.

**GULF COAST LINES.**—This company contemplates the construction of a passenger station at Brownsville, Tex.

**GRAND TRUNK WESTERN.**—This company has awarded a contract to W. E. Clebo, Grand Rapids, Mich., for the construction of a two-story freight house at Port Huron, Mich.

**ILLINOIS CENTRAL.**—This company closed bids on September 2 for the construction of a 600-ton concrete coaling station at Dawson Springs, Ky., reported in the *Railway Age* of August 23.

**ILLINOIS CENTRAL.**—This company has awarded a contract to Joseph E. Nelson & Sons, Chicago, for the construction of a concrete viaduct in connection with the grade separation project at North Baton Rouge, La., to cost approximately \$75,000. A contract has also been awarded to George W. Turner & Co., Memphis, Tenn., for the grading in connection with the construction of second track from Corinth, Miss., to Ruslor, to cost \$40,000.

**LOUISVILLE & NASHVILLE.**—This company has awarded a contract to John Rommel, Louisville, Ky., for the construction of a passenger station at Bowling Green, Ky., reported in the *Railway Age* of July 26.

**MISSOURI PACIFIC.**—This company has awarded a contract to Jerome A. Moss, Chicago, for yard filling, requiring approximately 100,000 cu. yd. of fill at Kansas City, Mo., reported as planned in the *Railway Age* of June 28. This company contemplates the cutting down of the hump in the East Bottoms yard at Kansas City.

**PENNSYLVANIA.**—This company has awarded a contract to the Brown-King Construction Company, Philadelphia, for the reconstruction of an overhead bridge at Lemoyne, Pa., to cost approximately \$80,000. A contract has been awarded to the Columbia Contracting Company, Altoona, Pa., for the construction of concrete roadways at the company's new Juniata shops, to cost approximately \$30,000.

**SEABROOK ELECTRIC.**—This company, which has recently been incorporated at Houston, Tex., proposes the construction of an interurban line from Houston, Tex., to Seabrook, a distance of 30 miles.

**ST. LOUIS-SAN FRANCISCO.**—This company has awarded a contract to T. H. Johnson & Co., Sedalia, Mo., for the construction of a passenger station at Lebanon, Mo.

**ST. LOUIS-SAN FRANCISCO.**—This company will close bids on September 6 for the construction of a brick passenger station at Neodesha, Kan., reported in the *Railway Age* of August 30.

THE NORTHERN PACIFIC reports marked decreases in fatal and other accidents to employees in the first six months of this year. In that time the decrease in fatalities was 47 per cent and in reportable accidents, 39 per cent, as compared with the same period last year. Among the shopmen, although there was a 10 per cent increase in shop forces, the accident percentage decreased 1.37 per cent.

## Railway Financial News

**CAROLINA, CLINCHFIELD & OHIO OF SOUTHERN CAROLINA.**—*Tentative Valuation.*—The Interstate Commerce Commission has issued a tentative valuation report as of 1917 placing the final value for rate-making purposes at \$1,626,155.

**CONSOLIDATED RAILROADS OF CUBA.**—*Merger.*—See Cuba Railroad.

**CUBA RAILROAD.**—*Consolidation.*—Final details have been completed for the formation of the Consolidated Railroads of Cuba. Common stocks of the Cuba Northern, the Cuba Railroad and the Camaguey & Nuevitas have been acquired in exchange for preferred and common stocks of the new road. By collateral agreement the Cuba Company has options to purchase at various periods voting trust certificates representing Consolidated stocks. The Cuba Company received preferred stock and voting trust certificates for the stock owned by it in the consolidated roads. The preferred shares are cumulative bearing 6 per cent interest. Corporate existence of the Cuba Railroad and Cuba Northern will continue for some time because of certain outstanding securities.

The new company has a Cuban charter. Horatio S. Rubens, who has been elected president, represents large interests in Cuba. D. A. Galdos and Oscar Alonso are vice-presidents. Thomas S. Clear, late treasurer of the United States Shipping Board and the United States Government Steamship Lines, is treasurer. W. H. Baker is secretary and Pedro F. Diago, assistant secretary. The board of directors consists of E. J. Berwind, P. A. Rockefeller, Horatio Rubens, H. C. Sakin and J. M. Tarafa.

**LOUISVILLE & NASHVILLE.**—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to create a series C under its first and refunding mortgage and to issue \$17,829,000 of 4½ per cent bonds, to reimburse the treasury and provide funds for capital expenditures. Authority was also asked to sell \$16,000,000 of the bonds to J. P. Morgan & Co., at 91½. The bankers on August 25 sold the issue at 93½ and interest, to yield about 4.82 per cent.

**RIO GRANDE & EASTERN RAILWAY CORPORATION.**—*Securities.*—This company has applied to the Interstate Commerce Commission for a certificate authorizing the purchase and operation of a new line to be constructed by the Rio Grande & Eastern Railroad, a construction company, from Hagan Junction to Hagan, Tex., 12.6 miles, and for authority to issue \$100,000 of common stock and \$200,000 of first mortgage 7 per cent bonds.

**TEXAS SHORT LINE.**—*Tentative Valuation.*—The Interstate Commerce Commission has served a tentative valuation report as of 1918 placing the final value for rate-making purposes at \$196,836.

**TUG RIVER & KENTUCKY.**—*Tentative Valuation.*—The Interstate Commerce Commission has issued a tentative valuation report as of 1916 placing the final value for rate-making purposes at \$381,630.

**VIRGINIAN.**—*Bonds.*—The Virginian & Western has applied to the Interstate Commerce Commission for authority to issue and the Virginian has applied for authority to guarantee, \$1,352,000 of first mortgage 5 per cent 50-year gold bonds, on account of the completion of certain construction work and in part payment of indebtedness to the Virginian therefor.

### Dividends Declared

Alabama & Vicksburg—3½ per cent, semi-annually, payable September 4 to holders of record August 19.

Boston & Albany.—2 per cent, quarterly, payable September 30 to holders of record August 30.

### Trend of Railway Stock and Bond Prices

	Sept. 2	Last Week	Last Year
Average price of 20 representative railway stocks .....	71.41	70.71	60.07
Average price of 20 representative railway bonds .....	87.85	87.50	82.63

## Railway Officers

### Operating

**C. R. McFarland**, assistant general manager of the Marion & Eastern, with headquarters at Marion, Ill., has resigned to engage in other business.

**L. J. Petrot** has been appointed assistant superintendent of the Toledo division of the New York Central, with headquarters at Toledo, Ohio, succeeding C. M. Williams, whose promotion to superintendent of the Cleveland division was reported in the *Railway Age* of August 16.

**C. A. Hodgman**, assistant superintendent of the Minneapolis & St. Louis, with headquarters at Oskaloosa, Ia., has been promoted to superintendent of the Central division, with headquarters at Fort Dodge, Ia., succeeding J. H. Reinholdt, resigned. The position of assistant superintendent at Oskaloosa has been abolished. **R. W. Brown**, chief train dispatcher has been appointed trainmaster of the Eastern division, with headquarters at Oskaloosa. **C. B. Morgan** has been appointed chief train dispatcher, succeeding Mr. Brown.

**W. C. Beck**, formerly chief clerk to the first vice-president of the Canadian Pacific, has been appointed assistant superintendent of the Ottawa division, with headquarters at Ottawa, Ont. Mr. Beck was born at Almonte, Ont., in 1889 and attended school at that place. He entered the service of the Canadian Pacific in 1907 as clerk to the locomotive foreman at Chapleau, Ont., and was later transferred to the office of the master mechanic at North Bay, Ont. He subsequently served as chief clerk to the superintendent at Chapleau, to the general superintendent at North Bay, to the general manager at Montreal, Que., to the vice-president of the Eastern lines and to Grant Hall, first vice-president.

**J. A. Caviezel**, whose promotion to general manager of the Alabama, Tennessee & Northern, with headquarters at Mobile, Ala., was announced in the *Railway Age* of August 9, was born on August 19, 1884, at St. Joseph, Mo., and was graduated from the Christian Brothers College of that city. He entered railway service in 1899 as an office boy for the St. Joseph & Grand Island and from August, 1903, to May, 1904, he served in various clerical positions in the auditor's office of the Chicago, Burlington & Quincy. In 1904, he went to Toledo, Ohio, as a clerk in the accounting department of the Toledo, St. Louis & Western, and in 1906 to Mobile, Ala., as general bookkeeper in the auditor's office of the Gulf, Mobile & Northern. In November, 1907, he became chief clerk to the auditor of the Alabama, Tennessee & Northern at Mobile, and in July, 1908, he entered the service of the Missouri & North Arkansas in a similar position at Eureka Springs, Ark. He was appointed general auditor of the Jonesboro, Lake City & Eastern in September, 1908, and remained with that company until February, 1912, when he was appointed auditor of the Alabama, Tennessee & Northern. In 1913 he became superintendent of the same road at York, Ala., and in 1915, general superintendent at Mobile. Mr. Caviezel was promoted to assistant general manager in November, 1920, the position he held at the time of his promotion.

### Traffic

**M. B. Hatfield** has been appointed commercial agent of the St. Louis-Southwestern, with headquarters at Paragould, Ark.

**O. W. Rowland** has been appointed agricultural agent of the Missouri Pacific, with headquarters at Little Rock, Ark.

On account of the illness of **W. B. Mallon**, Canadian traffic agent of the Buffalo, Rochester & Pittsburgh, **Gordon Brown** has been appointed acting Canadian traffic agent, with headquarters at Toronto, Ont.

### Mechanical

**Frank J. Regan** has been appointed fuel supervisor of the Northern Pacific, with headquarters at Duluth, Minn., succeeding Melvin Montgomery, deceased.

### Obituary

**J. D. Shuford**, general livestock agent of the Colorado & Southern and the Fort Worth & Denver City, with headquarters at Amarillo, Tex., died in that city on August 25.

**Charles R. Couchman**, who resigned as assistant purchasing agent and general storekeeper of the Pere Marquette in 1920 to become purchasing agent for the Detroit City Gas Company, Detroit, Mich., died suddenly at his summer home in Amherstberg, Ont., on August 16. Mr. Couchman entered railway service in 1892 as a messenger boy in the stores department of the Flint & Pere Marquette (now the Pere Marquette) and later became storekeeper at Port Huron and Saginaw, Mich. During the war he served as tie and timber agent for the Pere Marquette, Grand Trunk and the Ann Arbor.

**Edson J. Chamberlin**, formerly president of the Grand Trunk, whose death on August 27 at Pasadena, Cal., was recently announced, was born at Lancaster, N. H., in August, 1854, and was educated at the Montpelier Methodist Seminary. He entered railway service in 1871 as an office boy for the Central Vermont and was later appointed time-keeper in the car shops of the same road. In 1872 he became a clerk in the paymaster's office and later a clerk in the office of the superintendent of transportation. In April, 1884, he was appointed superintendent of the Ogdensburg & Lake Champlain and the Central of Vermont Line steamers running between Chicago and Ogdensburg. Two years later he became general manager of the Canada Atlantic, which later became a part of the Grand Trunk, and in 1905 he resigned to do contracting work in Canada and later in South America and Mexico. In 1909 he became vice-president and general manager of the Grand Trunk Pacific at Winnipeg, Man., and in May, 1912, he was elected president of the Grand Trunk. He was also elected president of the Central Vermont in January, 1913, which positions he held until his retirement in September, 1917.



E. J. Chamberlin

THE REAL ESTATE owned by the Pennsylvania Railroad in the city of Philadelphia includes no less than 556 separate parcels, as shown by the records of the city tax department. The railroad company has just handed the receiver of taxes a check for \$1,068,550 in payment of its taxes on these properties for the current year. Numerous freight stations scattered throughout the extensive territory of the city constitute important items in this tax list.

COLOMBIA, one of the largest and richest of the South American Republics, having few railroads and steamship lines, has established on four important routes regular mail service by airplane, so that letters from outside the country now reach the interior in much better time than formerly. Information concerning schedules and postage rates can be had from the American Trading Company, 25 Broad street, New York City, and 332 Pine street, San Francisco.